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ABSTRACT

The level of equivalence was compared for three kindergarten through grade 12 exit programs: (1) the Adult Basic Education (ABE) program; (2) the Division IV program through the regular high school channel; and (3) the General Educational Development (GED) tests. Comparisons were made for: time spent in course completion; objectives; emphasis of content and skill; evaluation criteria; and suggested level of cognitive functioning. The four subject areas studied were: communications; mathematics; science; and social studies. Data were obtained from curriculum descriptions, observations of the programs, and conversations with educators by seven researchers. From 1 to 10 months were required to complete a 5-10 ABE course, and time required to complete ABE 11 and 12 courses was greater than that for a Division IV course. Division IV curricula present a broader scope and emphasize skills more strongly than do ABE curricula in communications, mathematics, and science. The Division IV program emphasizes higher cognitive skills in communications, science, and social studies more than does the ABE program. The GED tests are very lacking in content for communications, mathematics, and science. Twenty tables throughout the text give classifications of the objectives in the content areas. An extensive appended table provides point-by-point comparisons of the three programs. Behavioral terms used in classifying objectives, evaluation criteria, GED test items, and GED test subject area domains are included. (SLD)

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A COMPARISON OF THREE K-12 EXITING PROGRAMS: ABE, DIVISION IV AND GED

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SIDRU Research Report No. 8
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by
William Toews, Ph.D.
June 1988

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EXECUTIVE SUMMARY

This study compares the level of equivalence of three K-12 exit programs: the Adult Basic Education program, the Division IV program and the General Educational Development tests. Comparisons are made with respect to times spent in course completion, content, emphasis of content/skill and suggested level of cognitive functioning. The four subject areas studied are: Communications, Mathematics, Science and Social Studies.

Data concerning times required to complete courses were obtained from curricula and educators. Curriculum objectives, General Educational Development test items and content domains were tabulated and compared with respect to scope, content/skill emphasis and suggested level of cognitive functioning using Bloom's Taxonomy. Proportions were calculated comparing relative objective frequencies in the category schemes indicated.

The findings can be summarized as follows:

1. The amount of time required to complete a 5-10 ABE course varies from 1 to 10 months, depending on the student's background and the subject considered. Time required to complete ABE 11 and 12 courses is generally greater than that required to complete a Division IV course.

2. The Division IV curricula present a broader scope than do the ABE curricula in the areas of: Communications, Mathematics and Science. In Social Studies the curricula have a strong common core with additional unique emphases.

   Only Division IV has a clearly defined Literature component. Although the Division IV Geometry-Trigonometry has a larger scope than does ABE, the main contribution comes from Mathematics. In the Science area it is largely Chemistry that contributes to the difference in scope between the curricula.

3. The Division IV curricula emphasize skill more strongly than do ABE curricula in the areas of Communications, Mathematics and Science; the Division IV Social Studies emphasizes content more strongly than does ABE.

   All of the Literature in Division IV is skill oriented. Both the Reading Skills and the Media Skills of Division IV emphasize skill more than do those of ABE; for Writing Skills the reverse is true. While the emphasis of skill in Geometry-Trigonometry is very similar for both curricula, Division IV emphasizes skill more strongly than does ABE in Algebra and Mathematics. Division IV emphasizes skill more strongly than does ABE in Chemistry and Physics; in Biology they are equivalent and in 5-10 Science the reverse is true. In Social Studies, ABE emphasizes skill more strongly than does Division IV in Canadian History and Native Studies, whereas the reverse is true in Canadian Government and Canadian Geography.

4. The subject areas in which Division IV emphasizes the higher cognitive skills more than does ABE are Communications, Science and Social Studies; the Mathematics programs are quite similar in the emphasis of higher cognitive levels.

   Higher cognitive skills are emphasized more strongly in Division IV than in ABE in Literature, Writing Skills, and Oral Skills. ABE has a higher evaluation emphasis in Reading Skills than does Division IV. Whereas the emphasis of higher cognitive

skills is the same for both curricula in Biology, Division IV has a stronger emphasis than does ABE in Chemistry; in 5-10 Science the reverse is true. Also, in Physics Division IV has a stronger evaluation emphasis than does ABE, however, ABE emphasizes application more strongly than does Division IV. In Social Studies Division IV has a higher cognitive skill emphasis than does ABE in Canadian Government and Canadian Geography, but the reverse is true for Canadian History and Native Studies.

5. The GED tests are very lacking in content for the subject areas of Communications, Mathematics and Science; for Social Studies the GED is very comprehensive. In the areas of Communications (Writing Skills), Mathematics, Science and Social Studies, the GED test items are higher in skill emphasis than are the evaluation criteria of both the ABE and Division IV curricula. However, in the Literature section, Division IV ranks higher in skill than do the GED test items. Furthermore, there is a higher proportion of GED test items at higher cognitive levels than there is of evaluation criteria in both the ABE and Division IV programs in the areas of Communications (Writing Skills), Mathematics and Science. However, apart from knowledge and comprehension, ABE and Division IV Social Studies emphasize higher cognitive levels than does the GED. Division IV Literature emphasizes higher cognitive skills than does the GED.

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Table of Contents

EXECUTIVE SUMMARY i

ACKNOWLEDGEMENTS iii

LIST OF TABLES vi

INTRODUCTION 1

METHODOLOGY 2

PRESENTATION OF RESULTS 3

TIMES SPENT IN ABE AND DIVISION IV PROGRAMS 4

COMPARISON OF THE CURRICULA AND GED (COMMUNICATIONS) . . . 5

1. Literature Program 7
2. Writing Skills 8
3. Oral Skills 10
4. Reading Skills 11
5. Media Skills 12
6. Composite Comparison of Communications Objectives 13
7. GED Comparison with ABE and Division IV 14

COMPARISON OF THE CURRICULA AND GED (MATHEMATICS) 16

1. Algebra 18
2. Geometry-Trigonometry 19
3. Mathematics 21
4. Composite Comparison of Mathematics Objectives 22
5. GED Comparison with ABE and Division IV 22

COMPARISON OF THE CURRICULA AND GED (SCIENCE) 23

1. 5-10 Science 23
2. Biology 25

3. Chemistry 26

4. Physics 27

5. Composite Comparison of Science Objectives 29

6. GED Comparison with ABE and Division IV 29

COMPARISON OF THE CURRICULA AND GED (SOCIAL STUDIES) 30

1. Canadian Government 31

2. Canadian Geography 33

3. Canadian History 34

4. Native Studies 35

5. Areas in Division IV not in ABE 36

6. Composite Comparison of Social Studies Objectives 36

7. GED Comparison with ABE and Division IV 37

CONCLUSIONS 39

SUMMARY 44

BIBLIOGRAPHY 46

APPENDIXES 49

1. TABLES CLASSIFYING CURRICULUM OBJECTIVES AND GED TEST ITEMS

2. BEHAVIOURAL TERMS USED TO CLASSIFY OBJECTIVES, EVALUATION CRITERIA AND GED TEST ITEMS

3. GENERAL EDUCATIONAL DEVELOPMENT TEST SUBJECT AREA CONTENT DOMAINS

LIST OF TABLES

Table		Page
1a	Classification of Literature Objectives	8
1b	Classification of Writing Skills Objectives	9
1c	Classification of Oral Skills Objectives	11
1d	Classification of Reading Skills Objectives	12
1e	Classification of Media Skills Objectives	13
1f	Classification of Communications Objectives	14
2a	Classification of Algebra Objectives	19
2b	Classification of Geometry-Trigonometry Objectives	20
2c	Classification of Mathematics 10, 20, 30 Objectives	21
2d	Classification of Mathematics Objectives	22
3a	Classification of 5-10 Science Objectives	24
3b	Classification of Biology Objectives	26
3c	Classification of Chemistry Objectives	27
3d	Classification of Physics Objectives	28
3e	Classification of Science Objectives	29
4a	Classification of Canadian Government Objectives	32
4b	Classification of Canadian Geography Objectives	33
4c	Classification of Canadian History Objectives	35
4d	Classification of Native Studies Objectives	36
4e	Composite Classification of Social Studies Objectives	37

INTRODUCTION

Several K-12 exit programs are currently in existence in the province of Saskatchewan. The three options are - Division IV through the regular high school channel, the Adult Basic Education program (ABE 10, 11 and 12) and the General Educational Development (GED) tests (10, 11 and 12). There is a need to establish equivalency between these three exit programs in order to articulate acceptable standards, to provide for portability between the programs, and to provide for university access to students gaining ABE and GED certification. This would lead to a development of public understanding regarding the purpose, relationship, equivalence and significance of these programs and certificates.

The basic question addressed in this study is - how equivalent are these three exit programs? More specifically the questions of interest are:

1. How many hours are spent in each of the Division IV and the ABE programs?

2. How do the objectives of the ABE and the Division IV programs compare?

3. How does the content/skill emphasis of the ABE and the Division IV programs compare?

4. How do the evaluation criteria of the ABE and the Division IV programs compare?

5. How well does the GED meet the evaluation requirements of each of the ABE and the Division IV programs with respect to content, skill and the evaluation criteria cognitive levels?

The subject areas of interest in the ABE program are limited to Communications, Mathematics, Science and Social Studies for Adult 10 and Communications, Algebra, Geometry, Trigonometry, Biology, Chemistry, Physics and Social Studies for Adult 11 and 12. The corresponding subject areas of interest in the Division IV curricula include English 10, 20 and 30; Mathematics 10, 20 and 30; Algebra 10, 20 and 30; Geometry-Trigonometry 10, 20 and 30; Biology 20 and 30; Chemistry 20 and 30; Physics 20 and 30 and Social Studies 10, 20 and 30.

The curriculum data were examined for general similarities and differences between the programs, for the comparative number of content and skill oriented objectives and for the comparative emphasis of the cognitive levels of Bloom's Taxonomy.

The GED data were analyzed to find the degree of overlap between the GED content domain (and sample test items) and the curricula objectives, the comparative content/skill emphasis, and to identify the comparative emphasis of the cognitive levels of Bloom's Taxonomy.

The team of researchers assisting the principal researcher was comprised of six educators who have expertise in the various subject areas. They included four individuals who are currently teaching at the Division IV level, one graduate student who has taught high school science in a non-Saskatchewan context, and one lecturer in Science Education in the Faculty of Education at the University of Regina. One of these

researchers has experience with the curriculum development in both the ABE and Division IV Mathematics and Science programs, another has served as writer on the Core Curriculum for the Department of Education.

METHODOLOGY

Data for question 1 were obtained from the curriculum materials and from conversations with educators of both the Adult Basic Education and the Division IV programs.

Data for questions 2 to 5 were obtained from the curriculum guides. Using the ABE objectives as the initial guide all the objectives in both the ABE and the Division IV programs were tabulated and coded (see Appendix 1). The objectives were frequently abbreviated; and to aid in this process the behavioural terms of the objectives were frequently deleted. The objectives thus defined the content and allowed the evaluation criteria to identify the expected behaviour.

While the ABE coding was straightforward, the coding of the Division IV objectives was variable, depending on the subject area. Some Division IV objective codings could readily be done by section and objective number; other objectives were simply identified as a text page number (eg. in Biology) or by section identification.

The evaluation criteria were also tabulated. Where these were not provided, particularly in the Division IV program, the behavioural words of the original objectives (where these were provided) were used to identify evaluation criteria.

The objectives were classified according to Bloom's Taxonomy. (Classification schemes of other domains were not tabulated). A list of behavioural terms was used in the classification process (see Appendix 2).

The objectives were furthermore identified as either content or skill oriented. Objectives that rated as knowledge or literal comprehension in Bloom's Taxonomy were classified as content; all other ratings were classified as skill. It should be noted that the content/skill dichotomy relates only to the intellectual domain and does not encompass technological skills (eg. demonstrating the ability to prepare a microscope slide).

In order to answer questions 3 to 5 frequency counts were made of the number of objectives found in each category. Ratios comparing frequency counts with the total number of objectives within each of the curricula were calculated. This approach should be free from variable interpretation provided the conceptual content from one curriculum to the other is approximately the same. However, at times some of the objectives are general, at other times very specific. Ratios therefore need to be interpreted with some caution, particularly when there is no match in objectives between the curricula.

It should also be mentioned that when calculating the total number of objectives that were either content or skill oriented, if an objective was classified to be both content and skill, it entered the calculation as a skill objective. Similarly, when calculating ratios of

frequencies of objectives classified according to Bloom, if there was more than one classification for that objective, the highest level entered the calculations.

In order to gather the relevant GED data, the GED practice tests (Form AA), one full length test (Form CK) and the subject area content domains (see Appendix 3) were examined. (Form A practice test and Form N full length test were also examined though not tabulated). The GED test items were classified using Bloom's Taxonomy and were then matched with the appropriate objectives. Because access to the universe of test items was limited, the question items served as predictive estimates for domains not represented in the test question pool. Those items of the GED content domain not sampled by test items, were matched with the appropriate set of objectives. These results were tabulated. Content domains covered by the GED but not covered by either the ABE or Division IV programs were identified.

The six researchers were assigned to six different subject areas for the purpose of collecting the data. These subject areas were - English, Mathematics, Biology, Chemistry, Physics and Social Studies. The seventh researcher provided the organizational framework for gathering the GED data.

Several measures were taken to ensure consistency and reliability of data collection and interpretation. Objective classification in Bloom's Taxonomy was carefully weighed and discussed until a sense of interpretive equivalence had been reached. The research team met five times, researchers met in pairs and the principal researcher met with the researchers either singly or in pairs to establish consistency.

Each of the subject area researchers tabulated the ABE, Division IV and GED data and submitted a written report of the subject data and data analysis. (Note the tables listed in Appendix 1).

PRESENTATION OF RESULTS

Some general comments about the Adult Basic Education (ABE) programs and the General Educational Development (GED) Testing program will first be given. Comments about specific Division IV curricula will be provided in the discussion of specific subject areas.

The ABE Academic Studies 1-12 program offers courses in the four areas of Communications, Mathematics, Science and Social Studies. Its purpose is to provide academic prerequisites to enter postsecondary academic and technical institutions, to provide preparation for employment and/or to provide opportunity for self-improvement.

The ABE curriculum materials include both a curriculum guide and a resource manual. The curriculum guides present the material to be learned using the criterion referenced model. The subject material is divided into large topical sections (about three to nine) called **tracks**. These are further broken down into general objectives called **blocks**. Specific objectives are listed and coded within each block. Matched with the objectives are evaluation criteria that provide the level at which the student should achieve the

given task to demonstrate success. The resource manuals provide a listing of the objectives matched with suggested resources, sample tests and annotated bibliographies.

The purpose of the GED tests is to provide adults with an evaluation and recognition of educational growth and experiences acquired after leaving school. These tests should enable qualified individuals to earn high school equivalency diplomas. They are purported to measure lasting outcomes and skills normally acquired in four years of high school. The tests are not concerned with specific details and definitions but are more concerned with broad concepts and with the ability to use knowledge meaningfully in problem solving.

The results concerning the five questions will now be given. In response to question 1, the data presenting the relative times required to complete the courses will first be given. The answers to questions 2 to 5 will be given consecutively for each subject area. Information comparing general features of the ABE and Division IV programs will be presented. Then the analysis of the objectives of the two curricula - their relative content/skill levels and their relative cognitive levels - will be presented and finally the degree of match between the objectives of the two curricula with the GED tests will be given. The subject order in which the results will be given is: Communications, Mathematics, Science and Social Studies.

TIMES SPENT IN ABE AND DIVISION IV PROGRAMS

Information concerning the amount of time spent in completing ABE classes was obtained from both the Victoria Centre and the McCannel Centre.

The time required to complete the 5-10 courses varies somewhat depending on the subject as well as on the level of achievement of the individual student. Communications 5-10 requires from 8 to 10 months, Mathematics 5-10 requires 4 to 10 months, Science 5-10 requires from 3 to 4 months (two laboratory activities are compulsory for all students) and Social Studies 5-10 requires about one full month plus a two week work placement.

The times required to complete the ABE 11 and 12 programs are variable depending where the classes are taken. At the Victoria Centre students take up to three courses in a trimester (a trimester is about 65 days in length). Each class requires one and a quarter hours in class plus one half hour in the Resource Centre per day. This would amount to about 146 hours per course. In addition it is expected that outside work will also be done.

In the McCannel Centre students enroll in two or three subjects for a 12 to 13 week term. They spend five and one half hours per day in regular classroom settings and supervised study. Times required to complete a course could vary from 110 hours to about 175 hours.

The amount of time required to complete a regular Division IV course is 100 hours. (Some teachers in the public school system feel that because of inservice, administrative tasks, and other interruptions, no more than about 80 days are left for teaching).

COMPARISON OF THE CURRICULA AND GED (COMMUNICATIONS)

The Communications Curriculum (ABE) was written in 1982. Its purpose is to outline the core communications skills for Grades 1 to 12 which will prepare adult students for both enjoyment and life. The curriculum is divided into four tracks (Writing Skills, Oral Skills, Reading Skills and Media Skills). Each track is further divided into blocks. Specific objectives and corresponding evaluation criteria are listed for each block. The skills within each block are sequenced from simple to complex. Evaluation consists of a combination of tests (placement, inventory, block and track-end) and term work/assignments. Students are expected to achieve a 70% mastery level for each concept.

Grade levels at which objectives are **introduced, taught intensively, reviewed** or **not taken** are also listed for each specific objective. Four grade categories are provided (1-4, 5-10, 11 and 12). It is further stipulated that some objectives are appropriate at all grade levels - the difference being in the difficulty of reading materials used and/or the degree of sophistication of the skill expected of the student. Other objectives are specifically stipulated for certain grade levels.

It is stated that the broad area of communications has been divided into separate components and that the objectives have been sequenced from simple to complex. However, it is also noted that skills are not necessarily acquired separately and/or sequentially. The task of reintegrating the separate components of the program is left up to the discretion of the individual instructor.

In the Communications Curriculum considerable emphasis is placed on individualization. It is clearly stated that each student should be assessed to determine his/her skill level in each of the four tracks. Instruction should then begin at the level appropriate to the student's needs. At the 5-10 level, the primary goals are: to further develop reading skills in the areas of vocabulary, comprehension and reading speed; to further develop the ability to organize and to express ideas in writing; to develop an understanding of forms of media; and to develop functional communication skills. At the 11-12 level, the primary goals are: to increase reading comprehension and rate; to develop greater sophistication in writing skills; to improve listening and speaking skills; to develop a critical appreciation of literary work; to develop an interest in recreational reading; and to understand media techniques and influences in order to improve decision-making in daily life.

The ABE program does include a Communications Resource Manual. The manual provides the instructor with sample book lists (suggested books for students and instructor references) for each of the four grade categories, annotated bibliographies for each of the four grade categories, a leisure reading bibliography and a list of publishers' addresses. It also provides sample tests in spelling/vocabulary, reading and writing and

an Informal Rating Inventory (I.R.I.). The I.R.I. is intended as a final Grade 10 exam/placement for Grade 11. (The readability of the I.R.I., based on Fry's Formula, is approximately high Grade 10). In addition to the book lists and tests, the manual also lists all of the objectives for each of the four tracks. Next to each objective are suggested resources - texts, workbooks, worksheets and the like (often including references to specific page numbers and specific exercises or activities on those pages) which the instructor may use to achieve the specific objective for each of the four grade categories.

The major thrust of the four tracks in the Communications Curriculum appears to be the development of functional skills in reading, writing, listening and speaking. Although the suggested resources in the Communications Resource Manual indicate a limited exposure to several literary genres as well as exposure to a limited range of recognized novelists, poets and playwrights, the majority of the reading resources appear to focus on remedial, corrective and/or vocational reading skills. Furthermore, the materials listed in the leisure reading bibliography tend to be primarily high-interest/low vocabulary books from the popular literature category, life skills books and/or native Indian reading materials.

The Curriculum Guide for Division IV (English 10, 20, 30) was written in 1975. Its purposes are: to provide a philosophy or set of principles for teaching English, to provide information on recommended materials for use by teachers, and to provide a plan for making principles and materials operative in the classroom.

The Curriculum Guide for Division IV is based on six organizing principles: **integration** (all branches of English - literature, writing, listening, speaking, reading, viewing should be as fully integrated as possible); **balance** (there should be a balanced approach to teaching as well as a balance between various genres of literature and types of writing); **sequence** (in general, the sequence of all aspects of English is from simple to complex); **flexibility** (flow charts listing skills and suggested materials are broad in scope in order to allow considerable freedom of choice for teachers); **pattern** (an attempt has been made to provide a coherent pattern in English courses to enable students to become aware of the range and variety of literature in terms of subject matter, genre, modes and chronology); **combined intensive-extensive approach to literature** (to provide in-depth coverage of some selections with close teacher direction and extensive coverage of other selections, providing opportunities for small group activity and/or independent study).

The Curriculum Guide for Division IV is divided into six programs: **literature, language and composition, reading, listening, speaking, the media**. Each program provides some indication of skills to be learned, material to be covered and/or suggested activities for each grade level (10, 11 and 12). Objectives are stated at the beginning of each program. However, unlike the arrangement in the Communications Curriculum, the objectives are not stated in behavioural terms and are not listed in a sequential manner from simple to complex. Instead, the objectives are stated in very general terms. No specific evaluation criteria are listed for objectives. Evaluation criteria are implied in the suggested resources for teachers, the skills listed to be covered and/or the activities suggested at the various grade levels. No minimum mastery level is indicated for any of the concepts, skills or activities listed in the curriculum.

It is assumed that specific objectives and evaluation criteria in the Curriculum Guide for Division IV (English 10, 20, 30) are implied in the suggestions for implementation, flow charts of activities, and suggested resources and materials for teachers.

Flow charts indicating the extent of treatment of various aspects of a program at specific grade levels (introduction, concentration, reinforcement) are provided for the language and composition program, the listening program, and the speaking program. The themes and/or modes to be presented, suggested materials to be used and the number of literary works of different genres to be taught are provided for each grade level in the literature program. The critical reading skills to be taught and/or reviewed at each grade level are provided in the reading program. The media program suggests that if English teachers have the time to deal with the study of the media that they use them in the following grade designations: Grade 10 - periodicals, records, tapes; Grade 11 - radio, television; Grade 12 - films, newspapers.

It would appear that each block within the Communications Curriculum is of equal weight in terms of importance and in terms of time/effort to be expended by instructor and student. That is not the case for the six programs in the Curriculum Guide for Division IV. Together, the literature program and the language and composition program constitute the major part of the English curriculum at each of the three grade levels. The Curriculum Guide for Division IV specifically states that reading, listening and speaking skills should be taught through the vehicle of prescribed materials and/or activities included in the literature and composition programs. It also states that the study of media should be undertaken only if the English teachers feel that they have the time and the ability to provide instruction involving the media. Furthermore, the study of the media should be from the perspective that the various forms of the media may be aids to the better understanding of literature and language rather than as self-sufficient areas of study.

1. Literature Program

There is no separate section/track in the ABE curriculum for Literature. However, one of the objectives listed in the Curriculum Guide for Division IV is found in the Grade 11 writing track in the Communications Curriculum.

The Division IV Literature program lists four broad objectives for all grade levels. These objectives are: enjoyment, appreciation, philosophical concerns and student writing. The curriculum states that these objectives are to be achieved through the study of poems, novels, Shakespearean plays, modern plays, short stories, essays, and non-fiction books.

The Division IV Literature program is designed to give the student a sense of orderly progression as he/she advances through the grades. The organization at each grade level is as follows:

Grade 10: Man Looks Outward

Grade 11: Man Looks Inward

Grade 12: The Ways in Which Man Sees Himself and His World

Under the organizational topic for each level, there is further subdivision into themes and sub-themes in Grades 10 and 11 and into modes in Grade 12.

As a guide to teachers the Division IV Literature program provides a sample treatment of a theme at the Grade 10 and Grade 11 levels and a sample treatment of a mode at the Grade 12 level. For the purposes of this study it is assumed that the objectives and evaluation criteria, stated or implied, for one theme or mode would also be assumed for each of the other themes or modes.

Table 1a presents the literature objectives classified according to Bloom's Taxonomy and presents the content/skill identification. As can be observed all of the objectives are classified at the application level or higher and are thus all skill oriented. Also, for Division IV there are more objectives at the synthesis and evaluation levels (67%) than at the application and analysis levels (33%). All four ABE objectives were at the synthesis and evaluation levels.

Table 1a CLASSIFICATION OF LITERATURE OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	0	0	0	0	3	1	4	0 4
DIV IV	0	0	31	4	29	41	105	0 105

*In all of the tables presented in this study the abbreviations are defined as follows: Know = Knowledge, Comp = Comprehension, App = Application, Ana = Analysis, Syn = Synthesis, Eval = Evaluation.

*The Grades 10, 11, 12 Division IV Literature programs are divided into 4, 4 and 3 numbers of sections respectively. Objectives/evaluation criteria are provided for only one section for each grade level. It is assumed that the same objective/evaluation criteria are implied for the other sections. The numbers in the table reflect that assumption. Table 1a is a composite of all three grade levels.

2. Writing Skills

In the Communications Curriculum (ABE), Writing Skills constitutes one of the four major tracks in the curriculum. It is pointed out that a significant number of the objectives are appropriate at all grade levels - the difference being the level of expectation in terms of refinement and degree of sophistication of the specific skill (such as sentence writing). The Writing Skills track is divided into six blocks. It is recommended that the writing skills of the student be diagnosed prior to beginning each block in order to determine what the student already knows. It is further

recommended that writing skills be evaluated at the end of each block and then the block marks be averaged to determine the final mark. Observation of the cumulative year's work constitutes 60% of the writing mark. The remaining 40% of the writing track is evaluated on the basis of a final test.

In the Curriculum Guide for Division IV (English 10, 20, 30), the section on writing skills lists two important aspects of the writing process: language and composition. The first section on language deals with such things as vocabulary, denotation and connotation of words, grammar, word usage, spelling and use of the dictionary. The other section on composition deals with diction, literary devices, sentence patterns, paragraphs and longer compositions of various types (i.e. narrative, expository, critical review, and the like).

An evaluation form for assessing writing is provided on page 74 of the curriculum guide. The evaluation form suggests that student writing may be evaluated in four categories: subject matter, style, mechanics, and overall assessment. However, the evaluation form is merely a suggestion, not a definitive method for evaluation of student writing. It appears that it is left up to the discretion of the individual teacher to determine the number of marks to be allocated to the various writing activities included in the language-composition flow chart (page 79-82 in the guide). There is no mention of a final evaluation of any kind and no indication of the specific means by which the teacher might arrive at a final grade for an individual student in the area of writing skills.

It would appear that the scope of the Division IV Writing Skills program is greater than that of the ABE program. In the Communications Curriculum a total of 25 objectives are listed for writing skills (Table 1b). Of these, one of the objectives is content oriented and 24 are skill oriented. The Communications Curriculum obviously has a higher proportion of skill objectives (96%) than does the Division IV curriculum guide (82%). Division IV has a higher proportion of objectives at both the synthesis and evaluation levels than does ABE (29% and 12% respectively) as well as in the knowledge and comprehension categories (21% and 12% respectively).

Table 1b CLASSIFICATION OF WRITING SKILLS OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	0	3	15	4	3	0	25	1 24
DIV IV	4	4	16	3	8	3	38	7 31

The greatest emphasis in both curricula is on application. However, it should be noted that the Curriculum Guide for Division IV contains objectives in all categories of Bloom's Taxonomy, whereas, the Communications Curriculum has no objectives in the highest category (evaluation).

3. **Oral Skills**

In the Communications Curriculum (ABE), Oral Skills constitutes another of the four major tracks in the curriculum. It is pointed out that all the skills (with the exception of formal speeches) are considered relevant and appropriate for each grade level - the only difference being the difficulty or "reading level" of the materials used at the various grade levels. Students are expected to achieve a 70% mastery level for each concept. It is suggested that it may not be necessary to formally test each objective. In the case of Oral Skills, the instructor may choose to evaluate on the basis of observations, using the checklist provided on page 20 of the curriculum guide.

In the Curriculum Guide for Division IV (English 10, 20,30), Listening Skills and Speaking Skills are listed individually as two separate programs. The curriculum states that listening for comprehension and for broadening of knowledge should be stressed at every grade level, beginning in kindergarten. However, at the Division IV level, it is suggested that in addition to reinforcing these two types of listening, specific emphasis should be placed on listening for creativity, interpretation, aesthetic appreciation and critical analysis. Specific evaluative criteria for listening skills are not directly stated but are implied in the suggested activities listed for Grades 10, 11 and 12. No minimum mastery level for specific listening skills is either stated or implied. No evaluation test instrument or minimum level of competency for the total Listening Skills program is either stated or implied in the curriculum.

The major objectives of the speaking program described in the curriculum are: to insure that students have opportunities for formal and informal speech and to develop students who speak intelligently, confidently, and interestingly. In some instances, evaluative criteria are implied in the detailed descriptions of the types of speaking, the subject matter for speeches and/or in the listing of the major aspects of delivery of speeches. However, there is no minimum competency level either stated or implied for individual concepts/activities or for an overall final evaluation of speaking skills.

The objectives in the Communications Curriculum and the Curriculum Guide for Division IV have about equal proportions of skill emphasis (Table 1c). Of these, the Curriculum Guide for Division IV (including both programs of Listening Skills and Speaking Skills), has a stronger emphasis on the higher cognitive levels of Bloom's Taxonomy and a weaker emphasis on the lower levels of Bloom's Taxonomy than does ABE.

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	0	6	14	0	0	0	20	2 18
DIV IV	1	3	20	2	3	6	35	3 32

It appears that the Oral Skills program in both curricula tend to be primarily skill oriented rather than content oriented. The majority of the objectives in both curricula fall into the application category. However, only the Curriculum Guide for Division IV contains objectives at the higher levels of Bloom's Taxonomy (i.e., analysis and evaluation). Therefore, it would appear that the Curriculum Guide for Division IV is broader in scope (35 objectives as compared to 20 objectives) and, to some extent, requires higher levels of cognitive processing than the Communications Curriculum.

4. Reading Skills

In the Communications Curriculum (ABE), Reading Skills constitutes another of the four major tracks in the curriculum. It is pointed out that almost all skills in Track C are necessary at all grade levels. Two examples are exceptions: application of phonics and interpretation of novels. The variable is the reading level of the material used. Evaluation of individual objectives within the reading track is implied in the evaluation criteria listed in the curriculum. Students are expected to achieve a 70% mastery level for each concept. Final evaluation is based on the CTBS (Canadian Test of Basic Skills) test results. No minimum percentile score or grade equivalency score for each grade level is specified in the curriculum.

In the Curriculum Guide for Division IV, the section on the reading program lists four important aspects of the reading process: decoding, comprehension, interpretation, analysis. It is pointed out that the first category of skills, decoding, is not part of the role of the Division IV teacher. Students who cannot handle basic decoding skills are to be referred to a reading specialist. The Division IV teacher does have a responsibility to guide the students in the development of the other three aspects of the reading process (ie. comprehension, interpretation and analysis).

The general approach to reading skills in Division IV is to be through the study of literature and composition. The teacher is expected to look for opportunities to expand vocabulary knowledge, to improve literal and inferential comprehension, to develop analytical reading abilities, to improve reading rate, and to teach study skills through the medium of various genres of literature.

In most cases, evaluative criteria for the stated objectives are implied in the suggested activities and/or in the suggested teacher's reference materials. There is

In most cases, evaluative criteria for the stated objectives are implied in the suggested activities and/or in the suggested teacher's reference materials. There is no minimum percent mastery level stated or implied for each of the objectives listed in the curriculum. In some instances there are no stated or implied evaluative criteria. There is no final evaluation such as the CTBS test which is used in ABE at the end of the reading track.

It would appear that the scope of the Reading Skills program in each of the curricula is about the same. The Curriculum Guide for Division IV has a stronger emphasis of skill objectives than does the Communications Curriculum with proportions of 82% and 68% respectively (Table 1d). Also, although the Communications Curriculum has three evaluation objectives while the Curriculum Guide for Division IV has none, the ABE program has a higher proportion of objectives in the combined category of knowledge and comprehension (53% and 18% respectively) and a lower proportion of objectives in the combined category of application and analysis (40% and 82% respectively) than does the Curriculum Guide for Division IV. It should also be noted that a number of the objectives listed in the reading skills section in the Communications Curriculum are listed separately in the literature section of the Curriculum Guide for Division IV.

Table 1d CLASSIFICATION OF READING SKILLS OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	9	11	13	2	0	3	38	12 26
DIV IV	6	1	27	5	0	0	39	7 32

5. Media Skills

In the Communications Curriculum (ABE), Media Skills constitutes the last of the four major tracks in the curriculum. Objectives are listed but no distinction is made between grade levels. All objectives are considered relevant and appropriate for each grade level - the only difference being the difficulty or "reading level" of the materials used at the various grade levels. Students are expected to achieve a 70% mastery level for each concept. The final evaluation for the media track is obtained by using the average of the series of block tests.

In the Curriculum Guide for Division IV, the section on the media stresses the point that the roles of the media in English courses are primarily as aids in the teaching of language and literature rather than as self-sufficient areas of study. Although it is recognized that students should develop some awareness of the impact of media

in their lives, the position is taken that the English program is not designed to include courses on the media. Suggestions for incorporating media skills into the English courses are provided with evaluation implied rather than directly stated. There is no specific set of evaluation procedures designed to evaluate mastery of media skills.

In the Communications Curriculum a total of 17 objectives are listed for Media Skills, but only seven for the Division IV curriculum (Table 1e). It is obvious that the ABE curriculum has a strong emphasis in the lower categories; the Curriculum Guide for Division IV objectives, though few in number, are all skill oriented.

Table 1e CLASSIFICATION OF MEDIA SKILLS OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	9	4	1	3	0	0	17	13 4
DIV IV	0	0	3	3	0	1	7	0 7

It appears that the Media Skills constitute a program of greater scope in the Communications Curriculum than in the Curriculum Guide for Division IV. However, the objectives in the former tend to be more content oriented and tend to be at the lower levels of Bloom's Taxonomy than are the objectives of the latter.

6. Composite Comparison of Communications Objectives

Table 1f compares the total number of objectives and theirclassification by Bloom's Taxonomy and content/skill for all five communications areas. The Division IV has a higher proportion (92%) of skill objectives than does the ABE curriculum (73%). It is apparent that the ABE curriculum has a higher proportion (40%) of knowledge and comprehension objectives than does the Division IV curriculum (9%); it has a lower proportion of synthesis and evaluation objectives (11%) than does the Division IV curriculum (41%). The comparative emphasis of application and analysis is very similar.

Table 1f CLASSIFICATION OF COMMUNICATIONS OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	18	24	43	12	4	7	104	28 76
DIV IV	11	8	97	17	40	51	224	17 207

7. GED Comparison with ABE and Division IV

In order to examine the level of equivalency between the GED tests and each of the ABE and Division IV objective levels, several GED tests were examined. Two practice tests (Form AA - one Canadian and the other American) and one full length test (Form CK) were examined for each of the areas of Writing Skills and Literature and the Arts/Reading. (The American tests were observed to be sufficiently similar to the Canadian tests to be included in the analysis). Each of the questions were classified in terms of the objective being tested, whether they were content or skill oriented and what their level of classification was in Bloom's Taxonomy. Those objectives of either the ABE or the Division IV curricula that were not being tested as well as those items of the GED content domain that were not contained in either the ABE or the Division IV curricula were identified (see Appendix 1).

As can be seen from the tables in Appendix 1 the GED Writing Skills test samples only a very small fraction of either the ABE or the Division IV curriculum objectives. Although these test items are not exhaustive of the universe of GED items the analysis would suggest that the representation of the ABE and the Division IV objectives would not be enlarged by any further sampling of test items. Less of the Division IV objectives than the ABE objectives are being tested by the GED. Although some of the GED test items appear to sample content outside of the objective domains of both the ABE and the Division IV curricula, this is very minimal and is thus not a major issue. All of the content domain of the Writing Skills GED test lies within the objective domains of both the ABE and the Division IV curricula.

All of the questions in the GED tests sampled are skill oriented. Of the total of 136 test items, 86 test items (63%) are in the application category, 45 test items (33%) are in the analysis category, two test items (2%) are in the synthesis category and three test items (2%) are in the evaluation category. There are no test items in either the knowledge or comprehension categories. In comparing the test item cognitive levels with that of Communications (ABE), it is found that ABE has 12% of the objectives in the comprehension category, the GED has none. The ABE curriculum has 76% in the application and analysis categories while the GED has 96% of the test items in these two categories. While ABE has 12% of the objectives in

the synthesis and evaluation categories, the GED has only 4% of the test items in these two categories.

In the Literature and the Arts/Reading GED tests no prior knowledge of literature is required to answer any of the questions. Excerpts from pieces of literature from various content areas (such as popular literature, classical literature, literary commentary) are provided on the test and the questions are based on those excerpts. Although a degree of reading proficiency would be necessary to read the excerpts and the questions, a knowledge of literary genres, figures of speech, literary analysis, etc. is not essential for success on the GED test.

There is very little overlap between the GED test items and both the ABE and the Division IV curriculum objectives. There are many areas covered in both the ABE and the Division IV curricula that are not tested in the GED. Also there is no content in the GED test domain which is not also part of the ABE and/or the Division IV curricula.

Of the 84 test items 21 test items (25%) are content oriented and 63 test items (75%) are skill oriented. All of the GED test items sampled in the Literature and the Arts/Reading test are classified in the four lowest categories of Bloom's Taxonomy. Twenty-five per cent of the test items are in the knowledge category, 41% are in the comprehension category, 16% are in the application category, and 19% are in the analysis category.

It is apparent that the GED tests provide testing mainly in writing skills and in reading skills. The examination of oral skills receives only scant attention. No focus is provided on literature (as it is considered in the Division IV program) or on media skills.

COMPARISON OF THE CURRICULA AND GED (MATHEMATICS)

The Mathematics Curriculum (ABE) was written in September, 1982. Its main purpose is to provide opportunities to apply learned concepts and computational skills to problem solving. Instructors are encouraged to include real life and consumer problems whenever possible in order to enable the students to relate these to life problem solving and to future careers.

S.I. units are to be used throughout the curriculum. Students are allowed to use calculators at any grade level. Although programs are to be individually designed for the students, the instructors are encouraged to provide for group work as appropriate.

As with other ABE curriculum guides, the Mathematics Curriculum (ABE) is divided into themes identified as tracks; the tracks are further divided into general objectives identified as blocks. Specific objectives, expressed in behavioural terms, are listed under these general themes. All objectives are coded in a logical fashion. Although the objectives are sequentially ordered, students need not necessarily follow the objectives in sequential order. Programs are to be individually constructed to meet instructor/student needs. An initial pre-test or placement inventory is to provide the necessary information to structure such programs.

Evaluation criteria are provided for each objective. Mastery levels are identified for most evaluation criteria. These vary from 70% to 100%. Although the curriculum provides for testing after each block, it is mandatory that tests be administered after the completion of each track. Evaluation is to be continuous and comprehensive and should have a proper balance between track tests and class work.

The aim of the 5-10 Mathematics program is for the student to acquire mathematical concepts and analytical skills for computation and solving of practical and abstract situational problems. Mastery of these concepts and skills should provide eligibility for further academic or skill training opportunities.

The aim of the 11-12 ABE Mathematics program is to provide the student with the prerequisite skills required by postsecondary institutions. The content is regarded as equivalent with that of the Division IV curriculum programs.

The Mathematics Resource Manual (ABE) includes sample tests and an annotated bibliography for the mathematics program.

This study includes a comparative analysis of both the Curriculum Guide for Division IV: Algebra 10, 20, 30 and Geometry-Trigonometry 10, 20, 30 and the Mathematics 10, 20, 30: A Curriculum Guide for Division IV.

The Curriculum Guide for Division IV: Algebra 10, 20, 30 and Geometry-Trigonometry 10, 20, 30 Interim Edition used in this study was written in 1984. These mathematics courses are to prepare the student for postsecondary education - either mathematics, science or the professions. The courses assume mastery of arithmetic skills and are intended to provide a balance of abstract mathematics and the solving of every day math-

ematical problems. The aims include the development of: mathematical skill and appreciation for mathematics, an understanding of the structure of the discipline, the ability to apply mathematics to real life and an appreciation of mathematics in our society.

Each course requires 100 hours, 70 hours of which is mandatory, and 30 hours is comprised of elective topics. Suggestions for elective topics are provided. The curriculum guide states that evaluation should be continuous and it should include a variety of strategies. It emphasizes the importance of problem solving and indicates the required steps to meaningfully carry out this process. Teachers are encouraged to allow the use of calculators and computers in mathematics. They are further encouraged to use a wide variety of teaching strategies (with seldom use of the lecture). Suggestions are provided in helping the student develop acceptable reading skills in mathematics and in relating mathematics to real life situations. A detail of topics together with student expectations are provided for each of the grade levels and for each subject.

The Mathematics 10, 20, 30: A Curriculum Guide for Division IV was written in 1977. As opposed to the "purity" approach of the 1960s and the 1970s emphasis of acquiring computational skills and an application of theory to the real world, this curriculum purports to emphasize applications of mathematics to real life situations and teacher instructional strategies.

This program avoids the theoretical study of axiomatics and lengthy proofs, emphasizing rather mathematical reasoning necessary for problem solving. It should provide preparation for postsecondary programs provided Algebra 30 is not required.

Each of the Mathematics 10, 20 and 30 courses requires 90 forty-five minute periods. Seventy-five of these periods are prescribed; the remaining 15 periods are comprised of optional content taken from topics in either business and consumer mathematics or academic mathematics. The remaining 10 periods are to be used for testing.

The curriculum guide provides a scope and sequence chart. The teaching sequence lists the topics with the corresponding prescribed number of periods. No specific evaluation criteria are supplied. Further, for each grade level, detail of topics and student expectations are provided.

When analyzing the ABE curriculum, if direct word transfer was not possible (which happened in very few cases), appropriate words from the objectives column were entered in the evaluation criteria column. Similarly, where the objective could not clearly be established without the evaluation criteria terms, such words were entered in the objectives column. Occasionally, if the key words were not suitable for the intent of the objective, other words chosen by the researcher were entered.

In order to establish a pattern and structure of identifying objectives for the Grade 10 level, the Division IV conceptual structure was used. The ABE objectives were then matched with the Division IV structure. The reason for this was that the ABE curriculum for this level included objectives for Grades 5 to 10. There was no grade identification for these objectives.

However, for the Grades 11 and 12 data, the ABE curriculum structure was used as the initial framework; the Division IV mathematics data were adapted to this framework.

Some of the limitations of the data need to be pointed out. First, the objectives requiring the student to "Define/Illustrate" usually did not match well between the ABE and Division IV data. Therefore, although the terms are matched on the chart, in instances where the fit was not good the word "partly" was also included. This signifies that the match was somewhat incomplete but was quite significant. Also, in some instances ABE presents lists of several objectives to cover a list of terms which are identified by a single objective in the Division IV curriculum.

Secondly, occasionally there is some overlap between subject areas. For example, some of the ABE Geometry-Trigonometry objectives matched with parts of the Division IV Algebra objectives. As a result the totals of the objectives categories for Geometry-Trigonometry actually includes some Algebra objectives for Division IV.

Thirdly, sometimes a Division IV objective (usually in the Geometry section) was very broad encompassing numerous sub-objectives (i.e., postulates and theorems for proving congruency of two triangles). Such global objectives were entered as a single objective; these objectives are signalled both in the tables as well as in the Geometry-Trigonometry comments.

1. Algebra

There are several differences between the emphases of the two curricula. Although relations and functions are covered in both curricula, the Division IV presents many more specifics than does the ABE curriculum. On the other hand, the Division IV curriculum lacks the midpoint of the line segment formula which the ABE curriculum includes.

While the ABE curriculum emphasizes operations of calculating, both with and without a calculator, the square and the nth root approximation of real numbers, this is not included in the Division IV curriculum. The Division IV curriculum emphasizes radicals, eg. "Solve for x: $\sqrt{x} + 2 = 7$", more than does the ABE curriculum.

While ABE provides an emphasis of scientific notation, this is lacking in the Division IV curriculum. Division IV does, however, present a strong emphasis of polynomial terminology and definitions, as well as factoring by grouping and the factor theorem.

There is no emphasis of quadratic inequalities and complex numbers in the ABE curriculum. Quadratic equations are covered in areas such as drawing graphs, finding roots and solving problems. More detail concerning breaking quadratic equations into their various parts and identifying these components, is provided in the Division IV curriculum.

Statistics and probability is included in the Division IV curriculum, but in the ABE curriculum it is listed only in the 5-10 Mathematics section. The ABE curriculum lacks any content on present value, annuities, mortgages and limit of a sequence.

Several concepts concerning permutations, combinations and probability are lacking in the Division IV curriculum, but are included in the ABE curriculum. These are: circular permutations; using combination notation for the coefficient of the terms of a binomial expansion; finding a specific term ("term r") of a binomial expansion and using combination notation for this; definitions of certain and impossible events, complements (and the symbolism) and odds, in favour or against; and the general binomial expansion (Division IV does include expansion with the binomial theorem using nCr for the coefficients) as well as related exercises.

Concepts missing in the ABE curriculum but present in the Division IV curriculum are: mutually exclusive events and dependent and independent events. The ABE curriculum includes exponential and logarithmic functions as well as matrices and determinants. These topics are not included in the Division IV curriculum.

Table 2a presents the Algebra objectives classified according to Bloom's Taxonomy and presents the content/skill identification. The total number of Algebra objectives is very similar in both curricula. The Division IV has a somewhat higher proportion of skill oriented objectives (92%) than does the ABE curriculum (87%). All but one objective, are classified in the four lowest cognitive levels. There is little difference between the relative emphases in the various categories of Bloom's Taxonomy. The cognitive level that receives the greatest emphasis is that of application.

Table 2a CLASSIFICATION OF ALGEBRA OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	19	6	117	12	1	0	155	20 135
DIV IV	10	17	104	11	0	0	142	11 131

2. Geometry-Trigonometry

There are several differences between the emphases of the two curricula. Although deductive reasoning is contained in both curricula, only the ABE curriculum includes conditional statements, while only the Division IV curriculum includes inductive reasoning. Both courses expect the student to use correct methods of reasoning throughout the course.

Sections which are contained in the Division IV curriculum but not in the ABE curriculum are: angular velocity and arc length, and identities and trigonometric

functions. The topics of scale drawings and inverse trigonometric functions are present only in the ABE curriculum.

The Division IV curriculum covers the two topics: congruent triangles and parallelograms/similar polygons more extensively, and provides greater detail than does the ABE curriculum. The ABE objectives in the first topic are rather vaguely stated, and provide only passing reference to parallelograms and trapezoids.

The Division IV curriculum emphasizes analytical geometry in more detail than does the ABE curriculum. It emphasizes determining equations (both the standard form and reversing the procedure) and working with related problems on topics such as: circles, ellipses, parabolas and hyperbolas. The ABE curriculum merely emphasizes changing equations into the standard form in order to identify the relevant parameters of a given geometric figure. The students are not expected to reverse this procedure to derive the original equations of the various conic sections.

Topics of relations and cartesian coordinates are not covered in this Geometry-Trigonometry section but are considered in the Algebra section.

Table 2b presents the Geometry-Trigonometry objectives classified according to Bloom's Taxonomy and presents the content/skill identification. There are considerably more objectives in the Division IV curriculum than there are in the ABE curriculum. This is mainly due to the relatively low number of objectives in the Grade 10 ABE curriculum. The reason for this is that the Division IV objectives are more generally written. For example, on the topics of congruent triangles the Division IV curriculum lists only 3 objectives, although they comprise a total of 6 definitions and 11 theorems or postulates. Similarly, in the section on the circle one objective actually encompasses 18 postulates, corollaries and theorems.

Table 2b CLASSIFICATION OF GEOMETRY-TRIGONOMETRY OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	17	17	99	9	0	0	142	25 117
DIV IV	19	22	110	11	0	0	162	26 136

The relative emphasis of skill between the two curricula is very similar - 82% for the ABE curriculum and 84% for the Division IV curriculum. All objectives are classified in the four lowest cognitive levels. The relative emphasis of the Bloom

Taxonomic categories is very similar for both curricula with a strong emphasis on the application category (just under 70%).

3. Mathematics

Several topics are only covered in the Division IV curriculum. These include business and consumer mathematics (simple and compound interest, annuities and present values); mensuration; Geometry (including polygons and various associated properties); Algebra: the quadratic formula (includes both the trinomial and the quadratic formula); exponential relations, functions, relations and representation of data and optional topics: income tax, stocks and bonds, and home ownership.

Two topics covered only in the ABE curriculum are: matrices and determinants; and permutations, combinations, and probability.

Two topics that are covered in more detail in the Division IV curriculum than in the ABE curriculum are: functional relations and representation of data - common types of graphs and descriptive statistics and relations, functions, variables. The latter topic provides more detail in the areas of relations terminology, joint and combined variations.

On the other hand, the ABE curriculum presents the topics of polynomials; real numbers; solving equations; and progressions, series and binomial expansions in much more depth than does the Division IV curriculum.

Table 2c presents the Mathematics objectives classified according to Bloom's Taxonomy and presents the content/skill identification. Because the curricula are so diverse, it may not be appropriate to compare the number of objectives with each other. However, the Division IV mathematics curriculum has a higher proportion of skill objectives than does the ABE mathematics curriculum (90% and 84% respectively). All but one synthesis objective are in the four lowest levels in Bloom's Taxonomy, with the greatest emphasis on application.

Table 2c CLASSIFICATION OF MATHEMATICS 10, 20, and 30 OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	23	11	124	8	1	0	167	26 141
DIV IV	12	29	132	8	0	0	181	18 163

Table 2d presents a composite classification of all the Mathematics objectives of both curricula. The Division IV has a greater emphasis on skill (88%) than does the ABE curriculum (63%). The Division IV curriculum has a higher proportion of comprehension objectives (14% and 7% respectively) and a lower proportion of knowledge objectives (9% and 13% respectively) than does the ABE curriculum. The proportions of the frequencies in the categories of application and analysis are very similar.

Table 2d CLASSIFICATION OF MATHEMATICS OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	59	34	340	29	2	0	464	71 293
DIV IV	41	68	346	30	0	0	485	55 430

5. GED Comparison with ABE and Division IV

In order to examine the level of equivalency between the GED tests and each of the ABE and Division IV objective levels, several GED tests were examined. Two practice tests (Form AA - one Canadian and the other American) and one full length test (Form CK) were examined for their content in Mathematics, Algebra and Geometry-Trigonometry. The content area of the Mathematics GED tests includes Arithmetic, Algebra and Geometry.

The test questions are very practical and multifaceted problems which involve organization of the information, translation into a mathematical equation and the actual calculation. Some problems require special knowledge such as calculating means, the sum of the interior angles of a triangle, areas, volumes, etc. Several questions involve calculations with fairly large numbers (calculators are not allowed).

Numerous topics are listed in both the ABE and Division IV curricula but are not tested by GED. Topics not addressed from Algebra 11 are: polynomials and powers and real numbers. Algebra 12 topics not tested are: real numbers, the quadratic function, statistics and probability. None of Geometry 11, much of which is theorems and proofs, is considered in GED. Trigonometry 12 content not tested in GED includes: scale drawings, trigonometric ratios in right triangles, aids to calculations, oblique triangles, identities and trigonometric functions. Topics not listed in the GED but presented in Mathematics 10 are: business and consumer mathematics; radical and square root algorithms; fundamental operations in polynomials; the conics; Geometry: mensuration, linear and area SI units and Euclidean concepts. Mathematics 11 topics absent in the GED include: polynomials, real

the conics; Geometry: mensuration, linear and area SI units and Euclidean concepts. Mathematics 11 topics absent in the GED include: polynomials, real numbers, business and consumer mathematics, fundamental relationships (trigonometric identities), plotting conics, and exponential relations. Mathematics 12 topics not tested in GED are: functions, relations and representation of data; matrices and determinants; progressive series and binomial expansion; business and consumer mathematics: annuities; permutations, combinations and probabilities; Geometry: mensuration, mass, capacity and SI interrelationships; Trigonometry: functions of angles, reciprocal trigonometric functions, the law of sines and cosines; income tax, stocks and bonds and home ownership.

Seventy-five of the test items of both the practice tests and the full length test are rated as application; the remaining three are rated as analysis. All test items, in both the practice tests as well as in the full length test, are therefore rated as emphasizing skill. Because there are only 27 items listed in the content domain, and because of the detail of the objectives identified in each of the curricula investigated in this section, all of the objectives evaluated by a single test item were not identified. However, the topical areas that are represented in the GED tests and identified in the content domain, were noted. The individual test items provide a sense of the level of sophistication at which the said topics are being tested.

It is apparent that the level of the GED is not equivalent to those of the ABE and Division IV curricula. It appears to be at about the Division III level. The questions are of a very practical nature and involve very little Algebra and Geometry.

COMPARISON OF THE CURRICULA AND GED (SCIENCE)

The ABE science curriculum provides for individualization and vocational specialization. It purports to offer considerable variety, including both general and specific types of knowledge. Teachers are encouraged to use practical, hands-on types of learning experiences to increase learning efficiency. Instructors are free to sequence the materials as appropriate. The students may be tested after each block of work; it is, however mandatory that the students be evaluated after each track is completed. Evaluation criteria achievement levels vary from 60% to 100%. The evaluation is to be continuous and comprehensive.

1. 5-10 Science

The Adult Basic Education 5-10 Science Curriculum was written in 1982. It emphasizes general knowledge of scientific facts, principles and problem solving. The curriculum is comprised of one compulsory track, Track A (Introduction to Science), and a second track of Track B (The Earth and Beyond), Track C (Health and Nutrition) or Track D (Disease and Drugs). The choice of the second track depends on the student's academic or career goals. The first block of Track A strongly emphasizes the scientific method as an integral part of science and one that provides for logical and orderly problem solving.

The Science 10 Curriculum Guide, written in September, 1980, deals essentially with the chemical aspects of matter and energy. It organizes the subject material into four themes: Theories of Matter; Interaction of Matter; Molecular Motion and Heat; Matter, Energy and You. It provides for a strong development and reinforcement of scientific processes. A brief annotated bibliography is provided.

In this analysis only Track A (excluding Block 5: Introduction to the Anatomy and Physiology of Man), Track B and Block 2 of Track D (Disease and Drugs) of the 5-10 Science ABE curriculum objectives are listed because they contain knowledge common to Science 10 and the other secondary physical sciences. The objectives of Block 5 of Track A and Track D are not listed, because they are primarily treated in the Health program. The Science 10 objectives are also not listed, other than how they relate to 5-10 Science program and the secondary physical science courses. The reason for this is that the content of the first three themes is again treated at the secondary level but in a more comprehensive manner. Theme IV is a unique focus on practical aspects of energy, pollution, drugs and cosmetics not encountered in either the ABE or other Division IV curricula, except for the section on drugs.

Most of the objectives listed in the 5-10 Science ABE program are also listed in various programs of the regular public school stream, including Elementary, Division III Science, Science 10 as well as Chemistry 20. Apart from listing objectives of the 5-10 Science program only the objectives of the Science 10 program are specifically identified from the curriculum. If one can assume that the level of cognitive performance is the same for each of the Elementary, Division III Science and Chemistry 20 as it is for the ABE 5-10 Science program, then one can identify objective categorization as given in Table 3a. The 5-10 Science ABE curriculum guide lists a higher proportion of skill objectives (41%) than does the public stream science program (31%). This is in part due to numerous knowledge objectives in the section on disease and drugs. Furthermore, the ABE program has a higher proportion of comprehension objectives (48% and 43% respectively) and a lower proportion of knowledge objectives (42% and 49% respectively) than does the public school science program.

Table 3a CLASSIFICATION OF 5-10 SCIENCE OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	38	44	3	5	1	0	91	54 37
DIV IV	42	37	3	4	0	0	86	59 27

2. Biology

The ABE Biology 11 program contains five tracks presenting the topics: The Study of Living Things, Ecology, The Mystery of Life, Genetics and Microbiology. The ABE Biology 12 program contains three tracks: Multicellular Plants, Invertebrates and Human Biology.

While the ABE course closely matches the Modern Biology Curriculum, students at the senior level may take the BSCS course which in its design is similar to the Chemistry and Physics curricula. Starting in 1963 three science courses based on PSSC Physics, CHEM STUDY Chemistry, and BSCS Biology were developed as parallels to the more traditional courses. In the early 1970s the Physics and Chemistry new courses and the older more traditional courses were combined but Biology, due to major differences in the philosophy of the courses, was not. As a result the ABE students take a course similar to Modern Biology but not necessarily similar to that taken by those students who take the BSCS course.

Only the Modern Biology: A Curriculum Guide for Division IV Biology 20, 30 (not the BSCS) is used for comparison in this study. This curriculum guide was written in 1971. It emphasizes the importance of developing and understanding the biological principles and processes through laboratory and field experimentation and investigation. Biology 20 stresses the Origin of Life; Ecological Concepts and Principles and the Biology of the Cell, Genetics and the Continuity of Life. Biology 30 includes the topics: Algae, Fungi, Plant Kingdom, Invertebrates, Vertebrates and the Biology of Man. The course outline lists the chapters and the investigations. The apparatus and materials for the laboratory activities are listed.

Both the ABE and the Division IV Biology programs for both grade levels use the Modern Biology text and are therefore very similar in content and sequence. However, the three topics of organic variation, body controls and reproduction and development are listed in the Division IV Biology Curriculum Guide only. The topic of disease and the human body is stressed more in the ABE curriculum than what is usually covered in the Division IV course. Much of this material was covered in the traditional Health courses but this is no longer the case. Because of this, students in the ABE program may have a stronger understanding of human biology than do the Grade 12 graduates from the Division IV Biology program.

As was suggested above, the Biology 20 and 30 curriculum guides list neither objectives nor evaluation criteria as does the ABE program. One can only assume that the objectives and evaluation criteria for the Division IV Biology 20, 30 program are analogous to that of the ABE Biology 11 and 12 programs. Table 3b presents the classification of the objectives according to Bloom's Taxonomy and the content/skill emphasis. It appears that the objectives are generally very content oriented (85%), with 66% categorized as knowledge. It should be emphasized, however, that the Division IV Biology 20, 30 Curriculum Guide recommends a total of 61 investigations. Although the ABE Biology 11 and 12 curriculum does not specifically prescribe these activities, since the Modern Biology text is used for both courses, one can assume that many or all of these activities will also be completed by the ABE students.

Table 3b CLASSIFICATION OF BIOLOGY OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	176	43	13	20	4	10	266	225 41
DIV IV	176	43	13	20	4	10	266	225 41

3. Chemistry

The ABE Chemistry 11 curriculum contains three tracks: Orientation to Chemistry, The Study of Matter and Mathematics and Matter. The ABE Chemistry 12 program contains five tracks: Solutions; Acids, Bases and Salts; Chemical Equilibrium; Electrochemistry; and Hydrocarbons. The curriculum closely parallels Modern Chemistry.

The Division IV Chemistry 20, 30 Curriculum Guide was written in 1976. The emphasis is on the discipline of chemistry and on the nature of science. A detailed rationale for emphasizing the conceptual approach, encompassing both chemistry subject matter (Dimension A) and the processes and nature of science (Dimension B), is presented. These dimensions are not to be taught as separate entities but are to be interwoven in the daily lessons. A conceptual framework containing the topics and text references is provided. Core concepts, in both Dimension A and Dimension B are detailed together with sample questions. A reference list and bibliography are provided.

The Conceptual Framework for Dimension A for Chemistry 20 includes Structure of Matter, Stoichiometry and Chemical Energetics; for Chemistry 30 it includes Structure of Matter, Chemical Energetics (energy changes, rates, equilibrium, solubility, acids and bases, and electrochemistry) and Organic Chemistry. The Conceptual Framework for Dimension B includes General Ideas about Science, Procedures of Investigation and Underlying Assumptions.

The Chemistry 20, 30 curriculum does not bind the teacher to a particular sequence or context, only to a common program or core. The course is not the textbook. Textbooks have been cross-referenced to the core and are to be used to assist the teacher in developing general concepts and to increase the degree of understanding of what is studied rather than to merely absorb factual material. New texts, or parts of new texts can be used as the teacher sees fit, especially since the last cross-referencing was completed prior to 1976. Teachers are expected to use multiple reference material to develop concepts that include the nature and process of science. Teachers may use a problem-centred or issues-centred curriculum. Once the core has been studied, the teacher is free to enrich and explore new topics.

Students should be evaluated on their understanding of concepts rather than on knowing a particular textbook. Performance or achievement is not to be measured with simple recall or memorization; open book tests are recommended. Teachers are encouraged to use a variety of evaluation approaches.

Topics that receive more emphasis in the Division IV Chemistry 20, 30 curriculum than in the ABE Chemistry curriculum include: the mole concept, stoichiometry, electron arrangement, quantum theory, chemical energetics, reaction kinetics equilibrium, molecular architecture and intermolecular attractions. The ABE curriculum emphasizes the metric system and related calculations, terminology and formula writing and naming more strongly than does the Division IV Chemistry curriculum guide. The Division IV Chemistry curriculum prescribes up to 45 laboratory investigations and or experiments. Although the ABE Chemistry curriculum identifies only one, it is assumed that with the use of the Modern Chemistry text numerous activities will be carried out by the students.

Although the objectives and evaluation criteria are clearly stated in the ABE Chemistry curriculum guide, as indicated above, in the Division IV Chemistry curriculum guide these had to be gleaned from the paragraphs describing the core's parameters together with the sample questions given for each concept. Table 3c presents the classification of the objectives. Both curricula appear to emphasize content more strongly than they do skill. However, the Division IV Chemistry curriculum has a stronger skill emphasis (46%) than does the ABE Chemistry curriculum (30%). Also, the Division IV Chemistry curriculum has a lower proportion of knowledge objectives (11% and 35% respectively) and a higher proportion of application and analysis objectives (33% and 13% respectively) than does the ABE Chemistry curriculum (21% and 3% respectively).

Table 3c CLASSIFICATION OF CHEMISTRY OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	62	73	37	6	1	0	179	130 49
DIV IV	24	95	75	30	5	2	231	125 106

4. Physics

The ABE Physics 11 curriculum contains eight tracks: Measurement, Fluids at Rest, Heat, Wave motion, the Nature of Light, Reflection of Light, Refraction of Light, and Sound. The ABE Physics 12 curriculum also contains eight tracks: Kinematics; Dynamics; Universal Gravitation; Impulse and Momentum; Work,

Energy and Power; Electrostatics; Current Electricity and Magnetism, and Electromagnets.

The Division IV Physics 20, 30 curriculum guide emphasizes the acquisition of cognitive knowledge and skills for the purpose of applying these to technology and societal conditions. The students are to learn how to learn, to learn about the lives of scientists, and to understand the way in which learning has progressed in physics. A focus on the acquisition of positive attitudes to physics is stressed; examples of writing and evaluating for affective objectives are given. The curriculum guide presents the concepts to be learned together with instructional objectives, reference to the appropriate aim, and a listing of the suggested investigations and the text references. Suggested enrichment topics are also provided. A glossary of terms used in the guide is included. A Physics Supplement provides additional new text information, organized as in the original curriculum guide.

The two curriculum guides parallel each other very closely. However, two topics covered in the ABE Physics curriculum but not in the Division IV Physics curriculum are the two tracks: Fluids at Rest and Heat. However, these two tracks are largely covered in Science 9 and 10. The Division IV Physics curriculum appears to have a stronger emphasis on graphing of equations and interaction of diffracted light. It suggests up to 80 investigations. Although the ABE Physics curriculum suggests only eight investigations, with the use of the suggested resources (several of which are also recommended by the Division IV curriculum guide) numerous other activities could also be done.

Table 3d presents the classification of the objectives according to content/skill and Bloom's Taxonomy. The Division IV Physics curriculum guide has a higher proportion of skill objectives (50%) than does the ABE Physics curriculum (47%). Furthermore, the ABE Physics curriculum has a higher proportion of knowledge and application objectives (41% and 32% respectively) than does the Division IV (35% and 29% respectively).

Table 3d CLASSIFICATION OF PHYSICS OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	51	26	40	6	1	0	124	66 58
DIV IV	50	36	41	5	2	8	142	71 71

5. Composite Comparison of Science Objectives

Table 3e presents the combined frequencies of the objectives in all of the science curricula. The Division IV science curricula have a slightly higher proportion of skill objectives (34%) than do the ABE science curricula (28%). Also, the Division IV curricula have a higher proportion of analysis and application objectives (8% and 18% respectively) than do the ABE curricula (6% and 14% respectively) and they have a lower proportion of knowledge objectives (40%) than do the ABE curricula (50%). Generally, the Division IV science curricula appear to have a greater emphasis of higher cognitive skills than do the ABE curricula.

Table 3e CLASSIFICATION OF SCIENCE OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	327	186	93	37	7	10	660	475 185
DIV IV	292	211	132	59	11	10	725	480 245

6. GED Comparison with ABE and Division IV

In order to examine the level of equivalency between the GED tests and each of the ABE and Division IV objective levels, several GED tests were examined. Two practice tests (Form AA - one Canadian and the other American) and one full length test (Form CK) were examined for each of the areas of science. Each of the questions was categorized with respect to the objective being tested, the content/skill emphasis and the level of classification in Bloom's Taxonomy. Those objectives of either the ABE or the Division IV curricula that were not being tested as well as those items of the GED content domain that were not contained in either the ABE or Division IV curricula were identified.

The GED Science test examines achievement in Earth Science, Biology, Chemistry and Physics. The content domain of the GED tests includes most of Track A of 5-10 Science, as well as Themes I, II and III of Science 10 (as these are largely a focus on scientific methods and an introduction to the three sciences of Biology, Chemistry and Physics). It also includes questions on Track B of 5-10 Science (The Earth and Beyond). Track C and Track D (Health and Nutrition and Disease and Drugs respectively) are not examined in the GED tests, neither is Theme IV (Matter, Energy and You) of Science 10.

There are some content areas that are tested in the GED tests that are in the Division IV curriculum but not in the ABE curriculum. These topics include structural and mineral aspects of the earth, the oceans, energy and the environment.

All of the Biology content domain of the GED tests is also contained in the ABE and Division IV Biology curricula. Topics that are listed in the Biology curricula but are not part of the GED content domain are: becoming familiar with the concept of habitat; conservation; infectious diseases, their cause and cures; applied genetics; and microbiology.

All of the Chemistry content domain of the GED tests match with the topics of the Chemistry ABE and Division IV curricula. In Physics, however, although all of the topics of the content domain of the GED Physics are contained in both the ABE and Division IV Physics curricula, several topics are not in the GED Physics content domain. These are: Mathematics of Physics, Fluids at Rest, Universal Gravitation, Impulse and Momentum and Electrostatics.

It is difficult to conclude from the content domains alone how well the various details of each of the Science curricula are considered in the GED tests. However, from the sampling provided by the tests one can conclude that very little detail of the various concepts of the sciences is being tested. Few questions require rigorous knowledge of definitions, concepts and principles and technical problem solving. Many of the questions are knowledge based and should be readily answerable by a knowledgeable adult regardless of formal educational background. Much of the test content requires no scientific knowledge. It is based on reading, comprehending, and in some instances, interpreting given information. As long as the examinee is able to read and comprehend he/she should do well on this part of the test.

The GED Science test items were categorized according to Bloom's Taxonomy and the content/skill emphasis. Of the 126 test items analyzed, 110 (87%) are skill oriented; over half (64%) of the test items are classified as higher than comprehension. The test items are consistently identified as higher in Bloom's Taxonomy, than are the specific curriculum objectives.

COMPARISON OF THE CURRICULA AND GED (SOCIAL STUDIES)

The Social Studies 10 Curriculum (ABE) was written in 1984-85. (The program was initiated by the Department of Continuing Education in 1980). The curriculum is divided into four Tracks: Canadian Government, Canadian Geography, Canadian History and Native Studies. In the Social Studies guide the blocks are organized under the headings of learning objectives, suggested learning activities and suggested resources. The objectives are clearly stated. The form along with the learning activities is like a sequence of guided activities through a series of resource books. The essential focus of the activities is on **listing, identifying, explaining** and **describing**. It would appear that the student could quite easily go through the work assigned without assistance from an instructor. Evaluation criteria are left to the instructor's discretion with the assumption that learning objectives would become the evaluation criteria. Annotated bibliographies and resources for map study skills are provided.

At times the instructions in the suggested learning activities are very detailed and comprehensive, ensuring that no major information is overlooked. In the main the goals of the program appear to be to give a basic comprehensive coverage of Canadian Social Studies. Students should gain a good basic knowledge of politics, geography, history and native studies. A sound factual coverage is ensured with a genuine attempt to develop comprehension and application skills. There is no real attempt to probe more deeply into the issues raised. Occasionally there is a focus on the higher intellectual skills of analysis, such as relating current Indian concerns to the constitution process.

The Curriculum Guide for Division IV, Social Studies 30, was written in 1978. The stated purpose of the course is to provide students with an awareness of how the Canadian identity developed, and how Canadians have fulfilled their needs within their physical and social environments. The emphasis is on contemporary affairs rather than on historical development, hence the lack of any historical approach.

The Curriculum Guide for Division IV is structured around six areas of investigation: **physical environment, economic systems, political structures, cultural diversity, foreign relations,** and **the Canadian identity**. Objectives are presented in the form of statements under the heading - Understandings to be Developed.

Emphasis is placed on an inquiry report approach to develop critical thinking and the inquiry process. The report style that is encouraged follows the levels of Bloom's Taxonomy. Students must present and defend a hypothesis based on the knowledge and comprehension of the information gathered. The guide also recommends developing skills in co-operative work, role playing, simulations, oral reporting and reading. Emphasis is on both formative and summative evaluation. Whereas the ABE program can be followed by a student alone, Division IV requires considerable teacher-student interaction.

Since there is no recent Division IV program that closely parallels the Canadian History track of ABE, a comparison was made with the Program of Studies for the High School, Grade 12. This program was written in 1963. Its purpose is to promote the growth of informed individuals and responsible citizens. The emphasis here is on information, the acquisition of a body of sound factual knowledge. The skills stated also stress the process of gathering information. There are two major sections: Chronological History of Canada and Canadian Problems.

Each block in the Social Studies 10 program is of equal weight as is each section of the Division IV courses.

The three courses show interesting elements of the approach to Social Studies education. While the ABE curriculum shows the approach of clearly stated behavioural objectives, the 1963 curriculum of Division IV presents the chronological factual approach, and the 1978 Division IV curriculum the inquiry approach.

1. Canadian Government

In the Social Studies Curriculum (ABE), Canadian Government is one of the five major tracks (Track A) in the curriculum. The general objectives in this track are:

the meaning, functions and origins of government in Canada; political geography of Canada (this topic is optional); democracy in Canada; political parties in Canada; federalism in Canada; the parliamentary system in Canada; the provincial government in Canada; municipal government in Canada; and government and the press (this topic is optional). The whole track is a basic study of the political system in Canada. It provides a comprehensive framework for a study of Canadian government, but does not go deeply into any of the issues. The major emphasis is on knowledge and comprehension.

In the Curriculum Guide for Division IV (Social Studies 30: Canadian Studies) the section on government is much less specific. There are no clear objectives. The curriculum addresses in very general terms such issues as the role of government in a democratic society, the written and unwritten constitution, the federal system, civil service, political parties and mass media. Beyond a list of topics there is very little clear direction for the teacher and student. There is an attempt to go beyond knowledge and comprehension to an examination of issues without a clear knowledge framework. This could be demanded, but it is left to the discretion of the teacher.

Table 4a presents the Canadian Government objectives classified according to Bloom's Taxonomy and the content/skill emphasis. The Division IV Social Studies curriculum emphasizes skill more strongly (88%) than does the ABE Social Studies curriculum (82%). Furthermore, the Division IV curriculum emphasizes analysis and application more strongly (39% and 49% respectively) than does the ABE curriculum (13% and 18% respectively).

Table 4a CLASSIFICATION OF CANADIAN GOVERNMENT OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	7	23	8	6	1	0	45	8 37
DIV IV	4	0	16	13	0	0	33	4 29

It would appear that the basic general knowledge in Canadian Government demanded by ABE is more comprehensive than that demanded by Division IV. Division IV is more inquiry and research oriented while ABE seems to be more test oriented. The greatest emphasis in ABE is on comprehension, while the greatest emphasis in Division IV is on application and analysis.

2. Canadian Geography

In the Social Studies Curriculum (ABE), Canadian Geography is the second major track (Track B) in the curriculum. The topics to be studied in this track are: introduction to map reading and graphing, mapping skills - world geography (this topic is optional), political divisions and population patterns in Canada, topographic features of Canada, climate in Canada, Canada's resources and commensurate industries, and Canada's support industries (this topic is optional). The basic emphasis of the whole track is on some geographic skills and on general geographic knowledge of Canada. The key word throughout the track is 'identify' suggesting that the student know standard geographic information. There is little attempt to examine the implications of the nature of Canadian Geography.

In the Curriculum Guide for Division IV (Social Studies 30) the focus is also on the basic geographic knowledge of Canada. There is also an attempt to suggest that Canadian lifestyles are influenced by the physical environment. Division IV also examines the impact of geography on Canadian regionalism and on regional disparity. There is a focus on the impact of location, climate and resources and on the advantages and disadvantages of different regions. The Division IV study of geography raises issues about the impact of geography on Canada. There is no study of basic map reading skills as in ABE.

Table 4b presents the classification of the Canadian Geography objectives according to Bloom's Taxonomy and the content/skill emphasis. The Division IV Social Studies curriculum emphasizes skill more strongly (75%) than does the ABE Social Studies curriculum (61%). It also has a higher proportion of application objectives (56%) than does the ABE curriculum (29%). The ABE curriculum has a higher proportion of comprehension and knowledge objectives (24% and 42% respectively) than does the Division IV curriculum (19% and 25% respectively).

Table 4b CLASSIFICATION OF CANADIAN GEOGRAPHY OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	16	9	11	2	0	0	38	15 23
DIV IV	4	3	9	0	0	0	16	4 12

The ABE Canadian Geography as stated deals with identifying basic geographic features. Some of the objectives deal with tasks, hence the application levels. Some objectives ask for maps to be filled and others ask for short essays. The Division IV section deals with some basic geographic knowledge of basic features, but the

focus is on the effect of geography. The highest level is application (an inquiry report).

3. Canadian History

In the Social Studies Curriculum (ABE) Canadian History constitutes Track C. The topics in this track are: Canada's first peoples, the coming of the Europeans and colonial development in Canada, pre-confederation: the struggle for responsible government, the road to confederation, post-confederation and expansion west and into the twentieth century - from colony to nation.

In the Curriculum Guide for Division IV there are two courses that match ABE to some degree - Social Studies Grade 12 (1963) and Social Studies 30 Canadian Studies. The 1963 course, although an old one, has the closest correlation with ABE. It has nine units that follow a chronological approach from early development of Canada through to the 1950s. It is not a curriculum as much as it is a course that follows the book - *Canada, A Story of Challenge by Careless.* This course relies on an approach of studying content (i.e., sound factual knowledge and chronological sequences) and is evaluated by examination.

The Social Studies 30, Canadian Studies does not correlate very strongly with ABE in the History section. In the section on Politics III-B.1 there is some historical study of the constitution, but other than this there is very little historical foundation in Canadian Studies 30. The evaluation focus in this course is on inquiry, research and essay although the option of examinations is stated.

Table 4c presents the classification of the Canadian History objectives according to Bloom's Taxonomy and the content/skill emphasis. When ABE requires research or a presentation, this is classified as application. Where there is a need to compare and contrast then analysis is assumed to take place. In the Curriculum Guide for Division IV (1963) there are 38 objectives that match ABE. Of these all are content oriented. Nowhere in the evaluation criteria for this course is interpretation stressed; the emphasis is on recall. Of the 38 objectives, therefore all are considered to be in the knowledge category. If Division IV Canadian Studies 30 is considered then there are higher levels of the taxonomy applied. However, very little specific history can be traced in this course. Only in sections on politics and foreign policy is there some history considered.

Table 4c CLASSIFICATION OF CANADIAN HISTORY OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	1	32	5	3	0	0	41	1 40
DIV IV	38	0	0	0	0	0	38	38 0

The assessment of Division IV Canadian History as knowledge in total may be unfair. The course does stress reasoned arguments and the ability to interpret. But the 1963 course was in essence an assessment of factual knowledge, even in the examination essay questions. In the Social 30 there is a stress on application and analysis but very little history is covered in the 1978 Social 30 course. Teachers in the field, teach a great deal of history and base their curriculum on the current text.

There is a serious problem of correlation in the history sections. It is not really valid to compare ABE with the old 1963 curriculum, but they are the only ones that match. The 1978 curriculum is also probably not used anywhere so this match may not be valid either. The only real match would be a selected survey of what is taught in the schools. In the main, however, ABE attempts a degree of comprehension of the history taught.

4. Native Studies

In the Social Studies Curriculum (ABE), Native Studies is the last of the four major tracks. The topics in this track are: Canada's first people, status Indians in Canada and metis people in Canada. The first topic is compulsory; the students may choose either the second or third.

The Curriculum Guide for Division IV (Social Studies 30: Canadian Studies) contains no section on Native Studies. The closest to any such study is the section (III-C) on Cultural Diversity which considers a study of the relationship between minority-majority groups.

Table 4d presents the classification of the Native Studies objectives according to Bloom's Taxonomy and the content/skill emphasis. In the ABE curriculum all but one objective are skill oriented. In the Division IV curriculum only in the 1963 Grade 12 course is there a set of objectives that match those in the ABE on Native Studies. There are 11 such objectives and all are content oriented, and in the knowledge category.

Table 4d CLASSIFICATION OF NATIVE STUDIES OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	1	12	7	2	0	0	22	1 21
DIV IV	11	0	0	0	0	0	11	11 0

Again Division IV comes short in a real emphasis on Native Studies. The areas of similarity with ABE are in such traditional areas of study as the fur trade and the western rebellions. Division IV does not address areas of modern native concern.

5. Areas in Division IV not in ABE

Of the objectives in Social Studies 30, those of physical environment, and political structures have some close correlation with ABE. The following objectives do not exist in ABE: those covering Canada's economic needs such as studies of public and private ownership and the nature of corporations and co-operatives, those that deal with cultural diversity such as minority-majority groups, areas of foreign policy such as trade policies and alliances, and studies of the Canadian identity (i.e., cultural issues, current immigration policies and government agencies).

In all of these areas it is difficult to identify specific objectives. However, several were identified. There are 8 knowledge objectives in Canadian problems, 9 application objectives (also classified as skill) in economic issues, 1 analysis and 8 application objectives (also classified as skill) in cultural diversity and 12 application objectives (i.e., 12 skill objectives) in Canadian identity.

6. Composite Comparison of Social Studies Objectives

Table 4e presents a composite comparison of the ABE and Division IV Social Studies objectives. The ABE Social Studies curriculum has a greater emphasis on skill (83%) than does the Division IV Social Studies curriculum (52%). The Division IV program has a higher proportion of application objectives (40%) than does the ABE program (21%), but it also has a higher proportion of knowledge objectives (48%) than does the ABE program (17%). These results are largely due to the great emphasis of content in both Canadian History and Native Studies.

Table 4e COMPOSITE CLASSIFICATION OF SOCIAL STUDIES OBJECTIVES

	Know	Comp	App	Ana	Syn	Eval	Total# Object	Content# Skill#
ABE	25	76	31	13	1	0	146	25 121
DIV IV	65	3	54	14	0	0	136	65 71

It is assumed that the objectives in the 1963 curriculum are tested for recall and are, therefore, in the knowledge category of Bloom's Taxonomy. The heavy content emphasis that is apparent in Division IV gives an unfair picture. This is because the 1963 course was used for History objectives. These are all knowledge objectives as can be seen from the total of 38 objectives classified as knowledge and content. Also the objectives in Native Studies, the Canadian problems and economic issues (all from the 1963 curriculum) are also content oriented. This also causes the low skills total for Division IV. The 1978 Division IV program is high in skill. A fairer picture would emerge if the 1963 course were separated from the 1978 course.

7. GED Comparison with ABE and Division IV

The GED Social Studies tests measure the ability to use knowledge and information about fundamental social studies concepts. The producers of the tests state that mere recall is not used. To a large extent this is true, however, some straight knowledge items, or items that need the recall of some knowledge in order to be answered correctly, are included.

The GED tests cover a broader range of content items than do Division IV and ABE. Items covered in GED are: History, Economics, Political Science, Geography and Behavioural Science (Anthropology, Psychology and Sociology). Of the 92 items in both the practice test (Form AA) and the full length test (Form CK), only 17 are covered in ABE. Even this overlap is somewhat tenuous. The questions may have similar areas of study such as Canadian federalism, however, the intellectual demands of the GED are somewhat higher than are those of ABE.

Further examination of the content domain of the Social Studies GED test indicates considerable agreement between the GED and ABE on the topics: Canadian History, Geography and Political Science.

There are several items in GED that are not covered in ABE. The GED has sections on Economics and the Behavioral Sciences. ABE has some economic coverage in sections on resources and industries, but does not study economics as a science. Most GED questions are about the nature of economics. There are

no ABE objectives on the Behavioural Sciences of Anthropology, Psychology and Sociology.

Of the items in ABE that are not covered in GED the most critical difference would be Native Studies. Track D of ABE has an extensive Native Studies block. This is, however, an optional block. There is no major focus on native studies in GED. Questions pertaining to native studies might appear in sections on Canadian History and Sociology.

It is more difficult to compare GED with Division IV. The overlap between GED and Division IV on the test items is also not extensive. Of the 92 items in the GED half test and the full length test, only 24 are covered in Division IV. The commonality is only in the areas of History, Political Science, and Economics.

Further examination of the content domain of the Social Studies GED test indicates considerable agreement between the former Division IV traditional history of 1963 and the history in GED. Both follow the chronological outline. However, the questions in GED demand more thinking and understanding.

When the GED is compared with the Division IV courses produced in the 1970s, then there is some commonality between GED Political Science, Geography and Economics. In both GED and IV there is an attempt to involve the higher order thinking of the student.

The GED tests areas of the Behavioural Sciences. These are not a normal part of Division IV Social Studies. There are, however, Division IV courses in these disciplines.

There appears to be no major area of Division IV that GED does not examine. Since GED deals with all the Social Sciences, any area of Division IV seems to have some coverage in GED. The essential difference is that the GED questions are more specific; they are in the range of comprehension and application. Division IV attempts to take the students on to the analysis level.

There is some degree of commonality on a factual basis between ABE, Division IV and GED. The GED areas of study of History, Political Science, Economics and Geography have matching areas of study in ABE and Division IV.

GED is more unique in its study areas of the Behavioural Sciences. ABE has a more detailed approach to Native Studies but does not place much emphasis on Economics, which is a major study in GED.

Of the 92 GED test items in both the Canadian practice test and the full length test, 88 (96%) are skill oriented. The proportion of skill oriented objectives in the ABE program is 83%, in Division IV it is 52%. Eighty (87%) of the GED test items are at the comprehension level. Both ABE and Division IV Social Studies have a higher proportion of knowledge and application objectives than does GED.

Division IV seems to have the highest demands on levels of skill according to Bloom and in this regard is the more sophisticated of the three programs. It is possible that the basic content coverage of ABE and GED may be more thorough, but this could depend on the Division IV instructors. ABE and GED are clearer in the coverage or content expected. There is then a degree of equivalency as far as content is concerned, but the levels of skill and competency expected vary considerably. The GED has a yet different approach. Specific criteria of learning are tested with the background information provided; there is no need for recall.

CONCLUSIONS

The conclusions will now be given in the order in which the research questions were stated. The order of subject areas will be: Communications, Mathematics, Science and Social Studies.

1. How many hours are spent in each of the Division IV and ABE programs?

   The time spent in the ABE 5-10 program varies from about 1 to 10 months depending on the student's background and the particular subject. The ABE 11 and 12 courses require from 110 to 175 hours, depending on the student's background and the Centre at which the course is being taken. One hundred hours are normally required to complete a Division IV course.

2. How do the objectives of the ABE and the Division IV programs compare?

   While ABE suggests equal weighting of writing skills, oral skills, reading skills and media skills, Division IV emphasizes primarily literature, language and composition. Only Division IV has a section on literature; ABE has a few scattered literature objectives. Division IV has a broader scope than does ABE in both writing skills and oral skills. The scope of reading skills is about the same in both curricula, whereas media skills are more extensively covered in ABE than in Division IV. As a total program, Division IV has a larger scope than does ABE, however, this is largely due to only Division IV having a literature program.

   Topics covered in the Division IV Algebra curriculum guide but not in ABE are: quadratic inequalities, complex numbers, present value, annuities, mortgage (this topic is covered in the ABE Consumer Mathematics), limit of a sequence, mutually exclusive events and dependent and independent events. Division IV Algebra is also stronger than ABE in statistics and probabilities, polynomial terminology and definitions, and parts and components of quadratic equations. ABE covers some details of permutations, combinations and probability which Division IV lacks. ABE is also stronger than Division IV in scientific notation, exponential and logarithmic functions, matrices and determinants.

   In Geometry-Trigonometry, topics listed by Division IV but lacking in ABE are: inductive reasoning, angular velocity and arc length, identities and trigonometric functions. Division IV is also stronger than ABE in the topics: congruent triangles, parallelograms/similar polygons and analytical geometry. Areas emphasized in

ABE but lacking in Division IV are: scale drawings and inverse trigonometric functions.

Topics emphasized in the Division IV Mathematics but not considered in ABE are: business and consumer mathematics (this topic is however considered in ABE Consumer Mathematics); mensuration; polygons; the quadratic form; exponential relations; functions, relations and representation of data; and optional topics of income tax, stocks and bonds and home ownership (these last three are covered in ABE Consumer Mathematics). Division IV is also stronger than ABE in functional relations and representation of data and in relations, functions and variables. Topics that are considered by ABE but not by Division IV are: matrices and determinants and permutations, combinations and probabilities. ABE also has a stronger emphasis than does Division IV in the topics: polynomials, real numbers, solving equations and progressions, series and binomial expansion.

The 5-10 Science program includes topics that are normally taught in the Health program of the regular Division III/IV stream. These topics include: Introduction to the Anatomy and Physiology of Man, and two options - Health and Nutrition, and Disease and Drugs. Theme IV of Science 10 - Matter, Energy and You - is not part of the ABE program. Topics presented in the Division IV Biology but not part of the ABE program are: organ variation, body controls, and reproduction and development. The topics of disease and the human body are emphasized more strongly in ABE than they are in Division IV. Topics emphasized more strongly in Division IV Chemistry than in ABE are: stoichiometry, electron arrangement and quantum theory, the mole concept, chemical energetics, reaction kinetics, equilibrium, molecular architecture and intermolecular attractions. The ABE program emphasizes formula writing and naming more strongly than does the Division IV program. In Physics the Division IV program emphasizes graphs and equations, and the interaction of diffracted light more strongly than does the ABE program.

In Social Studies, the ABE Canadian Geography has no section on map reading skills; Division IV emphasizes more strongly the meaning of geography. The ABE program has a much more comprehensive presentation of Canadian History than does Division IV; it is most clearly matched by the 1963 course. Whereas, the ABE curriculum has a section on native studies, Division IV has a brief related section on cultural diversity. Topics emphasized in Division IV but absent in ABE are: economic needs of public and private ownership, the nature of corporations and cooperatives, cultural diversity, trade and trade alliances, and the Canadian identity.

3. How does the content/skill emphasis of the ABE and the Division IV programs compare?

The objectives of the Literature program, contained only in Division IV, are all skill oriented. The ABE has a stronger skill emphasis than does Division IV in writing skills; Division IV has a stronger skill emphasis in reading and media skills; the skill emphasis for oral skills is the same for both curricula. For the whole subject area of Communications, Division IV has a stronger skill emphasis than does ABE.

While the two mathematics curricula present an equal emphasis in Geometry-Trigonometry, Division IV is more strongly skill oriented in Algebra and Mathematics as well as in the total Mathematics program.

In Chemistry and Physics, Division IV is more skill oriented than is the ABE program; though Chemistry (as identified by the comparative numbers of content/skill objectives) is more content oriented than skill oriented. The 5-10 Science ABE program is more skill oriented than is its Division IV counterpart. Both ABE and Division IV Biology curricula have equal content emphases. Over all, Division IV ranks higher in skill emphasis than does ABE.

In Social Studies, Division IV has a greater skill emphasis in both Canadian Government and Canadian Geography. All of the ABE Native Studies is skill oriented; Division IV is all content. All of the Division IV Canadian History objectives are content oriented. The Division IV topics not in ABE, economics, corporations and cooperatives, cultural diversity, trade issues and the Canadian identity are largely skill oriented. Over all, the ABE program has a stronger skill emphasis than does Division IV.

4. How do the evaluation criteria of the ABE and Division IV programs compare?

Generally, the evaluation criteria are more explicit in the ABE program than they are in the Division IV program. As was indicated previously, in many instances the evaluation criteria for the Division IV program were extracted from the wording of the objectives. Also, the expected level of students' performance is usually provided in the ABE curriculum but not in the Division IV curriculum.

The Literature section of English, present only in the Division IV curriculum, is largely synthesis and evaluation. In Writing Skills the Division IV curriculum has a stronger emphasis than ABE of the high cognitive levels of synthesis and evaluation as well as of the lower levels of knowledge and comprehension. In Oral Skills Division IV has more evaluation criteria at the higher levels of analysis and evaluation than does ABE. Only the ABE Reading Skills program expects students to write the CTBS test in completing the course. However, no level of achievement is defined. The Division IV evaluation criteria (though only implied) have a greater emphasis than does ABE on application and analysis as well as on knowledge and comprehension. In Media Skills ABE prescribes a performance level and suggests that the final mark be the average of the block tests. The program of Division IV is to be interwoven with language and literature; evaluation is implied. The evaluation criteria of Division IV are at a higher cognitive level than are those of the ABE program. Over all, in Communications, Division IV emphasizes synthesis and evaluation more strongly, and knowledge and comprehension less strongly than does the ABE program.

In the Algebra, Geometry-Trigonometry and Mathematics programs the cognitive levels of the evaluation criteria of both curricula are very similar; application has the greatest emphasis. The ABE emphasizes knowledge more strongly in Mathematics than does Division IV. Over all, both programs are very similar in emphasis

of application and analysis; however, Division IV is somewhat weaker in knowledge and stronger in comprehension than is the ABE program.

The ABE 5-10 Science program has less knowledge emphasis and a stronger comprehension emphasis than does the Division IV program. Both ABE and Division IV Biology programs are predominantly knowledge in emphasis. Division IV Chemistry and Physics emphasize knowledge less strongly, and application more strongly than do the ABE programs. The Division IV Chemistry emphasizes analysis more strongly than does ABE. Over all, the Division IV evaluation criteria emphasize analysis and application more strongly, and knowledge less strongly than do those of the ABE program.

In Canadian Government, the evaluation criteria in Division IV emphasize application and analysis more strongly than do those of ABE. ABE is test oriented; Division IV is inquiry oriented. In Canadian Geography Division IV stresses application more strongly, and knowledge and comprehension less strongly, than does the ABE program. The Division IV Canadian History program is completely knowledge. In Native Studies ABE is almost completely comprehension; Division IV is completely knowledge. Areas in Division IV, but not in ABE, have a strong application emphasis. Generally, Division IV stresses both knowledge and application more strongly than does the ABE program.

5. How well does GED meet the evaluation requirements of each of the ABE and Division IV programs with respect to content, skill and the evaluation criteria cognitive levels?

Tabulations were drawn from an analysis of the Form AA practice tests and from the Form CK full length tests. The Form A practice test and the Form N full length tests were also examined. No new information was gleaned from these, except that the Reading Skills test (Form N) contains an essay question. Otherwise the data confirm the information obtained from the tests tabulated.

The Writing Skills test samples only a very small proportion of both sets of curriculum objectives. The Literature and the Arts/Reading GED tests cover more of ABE Communications Curriculum than they do of the Division IV curriculum. There is very little overlap between GED and both ABE and Division IV; little of the content is covered. Although writing and reading skills are examined, little of oral skills and none of literature (as emphasized in Division IV) and media skills are examined in GED. Very little previous knowledge is required.

All test items of the Writing Skills GED tests are skill oriented; just over 96% of the ABE program and just over 80% of the Division IV program are skill oriented. Twenty-five per cent of the Literature and Arts/Reading test items are skill oriented; all Division IV Literature evaluation criteria are skill oriented. Over 90% of the items of the Writing Skills test are classified as application and analysis (there are less than 10% at the synthesis and evaluation levels), while Division IV has 79% and ABE has 82% of the objectives classified as above comprehension. The Literature and Arts/Reading test has no synthesis and evaluation items; Division IV has 67% at these levels.

There are numerous topics in the ABE and Division IV mathematics curricula that are not tested in the GED. The topics not covered in Algebra are: polynomials and powers and real numbers, the quadratic function, statistics and probability. None of Geometry 11 is covered in GED (Geometry 11 is a focus on theorems and their proofs). The Trigonometry 12 content not covered is: scale drawings, trigonometric ratios in right triangles, aids to calculations, oblique triangles, identities and trigonometric functions.

Topics not considered in the GED but presented in Mathematics are: business and consumer mathematics, radical and square root algorithms; fundamental operations in polynomials; Geometry: mensuration, mass, capacity and SI interrelationships, Euclidean concepts, fundamental relationships (trigonometric identities), plotting conics; exponential relations; functions, relations and representation of data; matrices and determinants; progressive series and binomial expansion; permutations, combinations and probabilities; Trigonometry: functions of angles, reciprocal trigonometric functions, and the law of sines and cosines; income tax, stocks and bonds and home ownership.

The mathematics test items all emphasize skill; Division IV has a skill emphasis just under 90% and ABE is just over 60%. While all GED test items are classified as application and analysis, just under 80% of the objectives in both the ABE and the Division IV curricula are application and analysis.

In 5-10 Science/Science 10 the GED test does not consider topics: Health and Nutrition; Drugs and Disease; and Matter, Energy and You (an application of energy to civilization). The Earth Science concepts tested by GED and contained in Division IV but not in ABE are: structural and mineral aspects of the earth, the oceans, and energy and the environment. Biological concepts not tested in GED are: becoming familiar with the concept of habitat; conservation; infectious diseases, their causes and cures; applied genetics and microbiology. In Chemistry the content domains match quite well. Physics topics not in GED are: Mathematics of Physics, Fluids at Rest, Universal Gravitation, Impulse and Momentum, and Electrostatics. As mentioned earlier the level of rigor required in the GED is not equal to that of either ABE or Division IV.

While the proportion of Science skill test items in GED is 87%, the skill emphasis of the evaluation criteria in ABE is 28% and in Division IV it is 34%. Furthermore, while the proportion of test items categorized as higher than comprehension in GED is 64%, objectives classified as higher than comprehension is 22% in ABE and 31% in Division IV.

In Social Studies the GED covers broader content than do the objectives of both the ABE and the Division IV curricula. Topics examined in GED but not part of the ABE and Division IV curricula are: Economics, Anthropology, Psychology and Sociology. The topic of Native Studies, part of ABE, is not examined in GED. Other than Native Studies, the GED examines all of the content of both ABE and Division IV Social Studies.

The GED test items emphasize skill more strongly than do the evaluation criteria of both curricula. While GED has a strong comprehension emphasis (87%), Division IV does provide considerable application emphasis (40%). The test items of GED have a higher proportion of comprehension but a lower proportion of knowledge, application and analysis than do the evaluation criteria of ABE.

SUMMARY

1. The amount of time required to complete a 5-10 ABE course varies from 1 to 10 months, depending on the student's background and the subject considered. Time required to complete 11 and 12 ABE courses is generally greater than that required to complete a Division IV course.

2. The Division IV curricula present a broader scope than do the ABE curricula in the areas of Communications, Mathematics and Science. In Social Studies the curricula have a strong common core with additional unique emphases.

   Only Division IV has a clearly defined Literature component. Although the Division IV Geometry-Trigonometry has a larger scope than does ABE, the main contribution comes from Mathematics. In the Science area it is largely Chemistry that contributes to the difference in scope between the curricula.

3. The Division IV curricula emphasize skill more strongly than do the ABE curricula in the areas of Communications, Mathematics and Science; the Division IV Social Studies curriculum emphasizes content more strongly than does ABE.

   All of the Literature in Division IV is skill oriented. Both the Reading Skills and the Media Skills of Division IV emphasize skill more than do those of ABE; for Writing Skills the reverse is true. While the emphasis of skill in Geometry-Trigonometry is very similar for both curricula, Division IV emphasizes skill more strongly than does ABE in Algebra and Mathematics. In all sciences but Biology, Division IV emphasizes skill more strongly than does ABE. In Social Studies, ABE emphasizes skill more strongly than does Division IV in Canadian History and Native Studies, whereas the reverse is true in Canadian Government and Canadian Geography.

4. The subject areas in which Division IV emphasizes the higher cognitive skills more than does ABE are Communications, Science, and Social Studies; the Mathematics programs are quite similar in the emphasis of higher cognitive levels.

   Higher cognitive skills are emphasized more strongly in Division IV than in ABE in Literature, Writing Skills, and Oral Skills. ABE has a higher evaluation emphasis in Reading Skills than does Division IV. Whereas the emphasis of higher cognitive skills is the same for both curricula in Biology, Division IV has a stronger emphasis than does ABE in 5-10 Science, Chemistry, and in evaluation in Physics. However, in Physics ABE emphasizes application more strongly than does Division IV. In Social Studies Division IV has a higher cognitive skill emphasis than does ABE in Canadian Government and Canadian Geography, but the reverse is true for Canadian History and Native Studies.

5. The GED tests are very lacking in content for the subject areas of Communications, Mathematics and Science; for Social Studies the GED is very comprehensive. In the areas of Communications (Writing Skills), Mathematics, Science and Social Studies the GED test items are higher in skill emphasis than are the evaluation criteria of both the ABE and Division IV curricula. However, in the Literature section, Division IV ranks higher in skill than do the GED test items. Furthermore, there is a higher proportion of GED test items at higher cognitive levels than there is for evaluation criteria in both the ABE and Division IV programs in the areas of Communications (Writing Skills), Mathematics and Science. However, apart from knowledge and comprehension, ABE and Division IV Social Studies emphasize higher cognitive levels than does the GED. Also, Division IV Literature emphasizes higher cognitive skills than does the GED.

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APPENDIXES

APPENDIX 1

TABLES CLASSIFYING CURRICULUM OBJECTIVES AND GED TEST ITEMS

The number and asterisk (n*) in the Evaluation Criteria columns signify the number of laboratory activities and/or experiments that are suggested in the curriculum guides.

The asterisk in the GED column identifies the topics that are identified in the GED content domain.

In the Objectives column and in the Evaluation Criteria columns, words are frequently abbreviated in order to retain the content of the objectives and the evaluation criteria respectively. Though the abbreviations are not always consistent, they are hopefully legible.

In the Cont/Skill columns, C(Cont) = Content and S = Skill. In the last three columns, abbreviations are used to signify levels in Bloom's Taxonomy. Due to some crowding, abbreviations are not completely consistent. Abbreviations represent the levels of Bloom's Taxonomy - Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation.

Furthermore, in the GED column, the cognitive levels signify the highest level represented in the GED test items.

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
ENGLISH									
Introduction to Theme	-	p. 23	-	Examine, Discuss	-	S	-	Ana	
Extensive Study the Essay	-	p. 23	-	Read, Discuss	-	S	-	Eval	
Written Composition	-	p. 23	-	Wrt to Supprt/Refute	-	S	-	Syn	
Listen to Poetry	-	p. 23	-	Listen, Discuss	-	S	-	App	
Poetry - Listen and Write	-	p. 23	-	Lstn, Write, Evaluat	-	S	-	Eval	
Poetry - Listen and Write	-	p. 23	-	Lstn, Write, Evaluat	-	S	-	Eval	
Myths, Legends, Short Story	-	p. 23	-	Read, Discuss	-	S	-	App	
Shrt Stry-fantsy, Sc fict, Mysty	-	p. 24	-	Read, Discuss, Write	-	S	-	Syn	
Novel - Plot, Caracters	-	p. 24	-	Read, Discs, Prepare	-	S	-	App	
Sum up Theme	-	p. 24	-	Write	-	S	-	Syn	
Introduction to Theme-Shrt Stry	-	p. 24	-	Read, Discuss	-	S	-	App	
Extensive Study of Short Story	-	p. 24,25	-	Read, Discuss, List	-	S	-	App	
Short Story, Literary Devices	-	p. 25	-	Read, Relate	-	S	-	App	
Write an Essay	A5.2	p. 25	Organize/Write	Write	S	S	Syn	Syn	
Poetry	-	p. 25	Stdy/Write/Cmbne/Apprec	Stdy,Wrt,Cmbne,Aprec	-	S	-	Eval	
Essay	-	p. 25	-	Read, Discuss	-	S	-	App	
Write Chapter of own Autobiog	-	p. 25	-	Write	-	S	-	Syn	
Study of Novel	-	p. 25	-	Rd, Oral Presnt,Eval	-	S	-	Eval	
Intro of Model Concept	-	p. 26	-	Discuss, Categorize	-	S	-	Syn	
Examine Historical Changes	A.5.2	p. 26	Organize/Write	Discuss, Write	S	S	Syn	Syn	
Tragic Mode	-	p. 26	-	Identify, Cmpre, Jdg	-	S	-	Eval	
Tragic Hero	-	p.26,27	-	Se Cnnctions, Cntrst	-	S	-	Eval	
Personal Reading for Enjoyment	C.4.3	p. 27	Read/Enjoy	Read, Enjoy	S	S	Eval	Eval	
Extensive Read	-	p. 28	-	Prsnt,Cmpr,Disc,Judg	-	S	-	Eval	
Write Ballads	-	p. 28	-	Write	-	S	-	Syn	
Poetry	-	p. 28	-	Rd,Enjoy,Compre,Judg	-	S	-	Eval	
Novels, Non-Fiction	-	p. 29	-	Rd,Comment,Evaluate	-	S	-	Eval	
TRACK A: Writing Skills									•
Novels	A.6.1	p.29,30	Organize, Write	Oral Talk,Essay,Cmpr	S	S	Syn	Eval	
Copy Complete Sentences	A.2.1.1	-	Copy/Reconstruct	-	S	-	Comp	-	
Write Complete Sentences	A.2.1.2	p. 80	Tell/Write	Recognize, Write	S	S	App	App	
Cap Fst W in Stenc, Prnouns	A.2.2.1	-	Identify/Write	-	S	-	App	-	Ana
Words in Titles	-	-	-	-	-	-	-	-	
Demon Correct Use of Pnct Marks	A.2.2.2	80,108	Identify/Punctuate	Identify, Punctuate	S	S	App	App	App
	11,12,10								
Crrct Use Subj,Pred,Prts of Spch	A.2.2.3	79,92	Punctuate/Use	Identify, Use	S	S	App	App	Ana
		114							
Spelling Correctly	A.2.2.4	79,96	Spell	Understand, Spell	C	S	Comp	App	App
Use,Recognze Diff Types of Sent	A.2.3.1	80,108	Recognize/Use	Recognize, Use	S	S	Comp	Comp	
Use Smple, Comp, Complx Sentence	A.2.3.2	80,108	Demonstrate/Write	Write	S	S	App	App	Ana
Use Varied Sentence & Varied	A.2.3.3	81,116	Rewrite/Expand/Correct	Recogize, Write	S	S	App	App	Syn
Sentence Length	-	-	-	-	-	-	-	-	
Use Parellism & Blance in Sentc	A.2.3.4	105,113	Correct	Understand, Write	S	S	App	App	App
		80							
Employ Diff Levels of Lang:Frmal	A.2.3.5	79,100	Recognize/Correct	Recognize, Apply	S	S	App	App	
Idntify, Use 3 Elemnts of Prgrph	A.3.1	81,111-	Identify/Use/Write	Identify, Use, Write	S	S	App	App	
		114							
Demo Narrate, Desc, Expl, Effct,	A.3.2	82,124	Summarize/Desc/Explain	Wrt, Rvise, Rewrte	S	S	App	Syn	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Friendly Letter	A.4.1.1	-	Know/Write	-	S	-	App	-	
Business Letter	A.4.1.2	82,134	Know/Write	Write, Edit, Rewrite	S	S	App	Syn	
Demo Abil to Fill out Forms	A.4.2	-	Fill out Form	-	S	-	App	-	
Covering Letter	A.4.3.1	134	Write	Write	S	S	App	App	
Resume	A.4.3.2	-	Write	-	S	-	App	-	
Multiparagraph Composition	A.5.1	81,82, 111,112	Organize/Write	Organize, Write	S	S	Syn	Syn	
Organ a Theme in Essay Form	A.5.2.1	82,134 130,121, 122	Organize/Outline	Organize, Outline	S	S	Ana	Ana	Syn
Edit/Proofread	A.5.2.2	82,134, 130,121 122	Edit/Proofread	Edit, Proofread	S	S	Ana	Ana	
Organize, Develop, Conclude	A.5.2.3	82,134, 130,121 122	Organize/Devel/Write	Organ, Write, Revise	S	S	Syn	Syn	
Organize Research Paper	A.6.1.1	82,122 137	Organize, Outline	Organize, Outline	S	S	Ana	Ana	
Proofread, Edit Above	A.6.1.2	73,82, 137	Edit/Proofread	Edit, Revise, Rwrite	S	S	Ana	Syn	
Independent Research Paper	A.6.1.3	82,137	Research/Write	Write	S	S	Syn	Syn	
Stdy of Wds as Symbols, Definit	-	79,88	-	Study, Understand	-	C	-	Know	
Study of History of Language	-	79,90	-	Read, Describe	-	C	-	Know	
Denotation/Connot	-	79,91,92	-	Discuss, Give Exampl	-	C	-	Comp	
Lang Usage (Idiom, Lvels of Lng)	-	79,84,86	-	Recognize	-	C	-	Know	Syn
Know & Use of Roots, Prefx, Sufx	-	79,95	-	Review, Discuss	-	C	-	Know	
Use of Dictionary	-	79,97	-	Know, Use	-	S	-	App	
Diction: Denotation, Connotatn	-	79,97,98 99	-	Examine, Understand	-	C	-	Comp	
Diction: Abstract and Concrete	-	79,98,99	-	Understand, Write	-	S	-	App	
Diction: Synonyms & Antonyms	-	79,99,100	-	Idntfy, List, Write	-	S	-	App	
Diction: Levels of Usage	-	79,100	-	Recognize, Write	-	S	-	App	
Dction: Prbl in Usge-Jrgn,Clich	-	79,100, 101	-	Rewrite	-	C	-	Comp	Ana
Literary Devices	-	80,101,- 106	-	Rd, Recog, Eval, Wrt	-	S	-	Eval	
Autobiography	-	73,82, 131	-	Organ, Write, Revise	-	S	-	Syn	
Biography	-	73,82, 132	-	Organ, Write, Revise	-	S	-	Syn	
Precise	-	73,82, 132	-	Combine, Write	-	S	-	App	
Paraphrase	-	82,133, 134	-	Rewrite	-	S	-	App	
Criticism and Reviews	-	82,134 136	-	Assess, Eval, Write	-	S	-	Eval	
Editorial	-	82,137	-	Reason, Argue, Write	-	S	-	Eval	
TRACK B: Oral Skills									
Disting Btw Hearing & Listen Skl	B.1.1	-	Paraphrase	-	S	-	Comp	-	
Uses Approp Attending Behavior	B.1.2	158	Uses	Uses, Rates	S	S	App	Ana	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Undrstnding Detcting Main Idea	B.1.3.1	157	Detects/Compre/Paraphr	Idntfy, Outline, Lst	S	S	Comp	App	
Undrstnding in Recg, Supp Dtails	B.1.3.2	157	Paraphrase	Identify, List	S	S	Comp	App	
Undrstnding in Recognizing Facts	B.1.3.3	156,157	Recognize	Identify, List	C	S	Comp	App	
Undrstnding in Recog Cntxt Clues	B.1.3.4	-	List	"	S	-	Comp	-	
Undrstnding in Recog Humor	B.1.3.5	-	Recognize	"	C	-	Comp	-	
Demo Spking Skills Appro to Situ	B.2.1	163	Demonstrate/Participate	Demonstrate, Partici	S	S	App	App	
Using Telephone	B.2.2.1	-	Demonstrate/Use	"	S	-	App	-	
Conversation	B.2.2.2	-	Demonstrate/Use	"	S	-	App	-	
Discussion	B.2.2.3	162	Demonstrate	Demonstrate	S	S	App	App	
Giving Directions	B.2.2.4	-	Demonstrate	"	S	-	App	-	
Seeking Info & Paraphrasing	B.2.2.5	167	Demonstrate/Show	"	S	S	App	App	
Announcements	B.2.3.1	167	Demonstrate	"	S	S	App	App	
Demonstration	B.2.3.2	-	Demonstrate	"	S	-	App	-	
Instructions	B.2.3.3	167	Introduce	Introduce	S	S	App	App	
Relaying Messages	B.2.3.4	-	Relay/Demonstrate	"	S	-	App	-	
An Informal Job Interview	B.2.4.1	-	Intervw/Critcze/Demonst	"	S	-	App	-	
Formal Interview	B.2.4.2	-	Desc/Interv/Intro/Respn	"	S	-	App	-	
Formal Speech	B.2.5	165,166 167,176, 177	Demonstrate	Demonstrate	S	S	App	App	
Lsten to Wrds; Ident Incongr Itm	-	156	-	Identify	-	C	-	Comp	
Lsten to Wrds; Wrte Wrds Frm Mem	-	156	-	Remember	-	C	-	Know	
Lsten to Wrds; Detect Mispronoun	-	156	-	Identify	-	C	-	Comp	
Lsten to News Item; Give Headlin	-	156	-	Supply, Write	-	S	-	App	
Lsten to Lng News Itm; Oral Summ	-	156	-	Summarize	-	S	-	Comp	
Sentences-Note Ambiguit, Mistkes	-	156	-	Listen, Ident, Eval	-	S	-	Eval	
Lsten to Passge; Look up New Wrd	-	156	-	Listen, Find, List	-	S	-	App	
Lsten to Paragrph; Write Precis	-	156	-	Listen, Write	-	S	-	App	
Give Interview; Give Oral Sumry	-	156	-	Conduct, Summ, Crit	-	S	-	App	
Lsten to Poem; Write Prose Expl	-	157	-	Listen, Explain	-	S	-	App	
Lstn to Hi Pnt of Stry;Wrt End	-	157	-	Listen, Compose	-	S	-	Syn	
Lsten to Msic; Creat Md to Writ	-	157	-	Listen, Write	-	S	-	Syn	
Lsten to Impressnst; Mimic	-	157	-	Listen, Mimic	-	S	-	App	
Lstn to Sentc; Tone Chngs Mean	-	157	-	Listen, Demonstrate	-	S	-	App	
Lstn to Sentc; Stress Chngs Mean	-	157	-	Listen, Demonstrate	-	S	-	App	
Lstn to Sentc; Interp Att, Emot	-	157	-	Listen, Interpret	-	S	-	Eval	
Lstn to Orchestra; Desc Emotion	-	157	-	Listen, Descr, Eval	-	S	-	Eval	
Lstn to Poem; Slct Desc Wds/Phrs	-	157	-	Listen, Select	-	S	-	App	
Lstn to Play;Note Sound Eff,Voi	-	157	-	Listn, Cmment, Intrp	-	S	-	Eval	
Lstn to Psage;Note Transitnl Wds	-	158	-	Listen, List	-	S	-	App	
Lstn to Speeches re Fals Reason	-	158	-	Listen, Evaluate	-	S	-	Eval	
Lstn to Speech-Find Rhetor Devc	-	158	-	Listen, Identify	-	S	-	App	
Anal Audienc for + & - Attribut	-	159	-	Analyze	-	S	-	Ana	
Impromptu or Extmpraneous Speech	-	164,170-177	-	Deliver	-	S	-	Syn	
Prticp in One,(More) Grp Speech	-	167-170 170-177	-	Partic, Listn, Eval	-	S	-	Eval	
TRACK C: Reading Skills									
Use Struct Anal in Root Words	C.1.3.1	-	Identify	-	C	-	Know	-	
Use Struct Anal in Endings	C.1.3.2	-	Identify	-	C	-	Know	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Use Struct Anal in Suffixes	C.1.3.3	-	Identify	-	C	-	Know	-	
Use Struct Anal in Prefixes	C.1.3.4	-	Identify	-	C	-	Know	-	
Use Struct Anal in Contractions	C.1.3.5	-	Identify	-	C	-	Know	-	Know
Use Struct Anal in Compound Word	C.1.3.6	-	Identify	-	C	-	Know	-	
Use Struct Anal in Syllabication	C.1.3.7	-	Identify	-	C	-	Know	-	
Use Context Clues	C.1.4	145-146	Supply/Use	Perceive/Infer/Solve	C	S	App	App	
Understand Word Meanings	C.2.1.1	-	Define	Perceive/Infer/Solve	C	-	Know	-	
Find Main Idea	C.2.1.2	148	Determine/Find	Locate/Practice	S	C	Comp	App	
List Supporting Details	C.2.1.3	148	List	See/Show/Demonstrate	S	S	Comp	App	App
Identify Sequence	C.2.1.4	148	Identify/Recall	Analyze/Determine	C	C	Comp	Ana	
Recognize Cause & Effect	C.2.1.5	148	Determine	See/Show/Demonstrate	S	S	Comp	App	Ana
Follow Directions	C.2.1.6	-	Follow	-	S	-	Comp	-	
Draws Conclusions	C.2.2.1	148	Infer	Analyze/Determine	S	S	Comp	Ana	Ana
Predict Outcomes	C.2.2.2	148	Predict/Infer	Predict, Infer, Anal	S	S	Comp	Ana	Comp
Identify Author's Purpose	C.2.2.3	148	Infer/Identify	Identify	S	S	Comp	Ana	Ana
Identify Humor	C.2.2.4	-	Identify	-	S	-	Comp	-	
Understand Figurative Language	C.2.2.5	146	Explain	Recgnze, Dscrbe, Use	S	S	Comp	App	
Recog Prejdc,Bias, Propa, Fact	C.2.3.1	151	Recog/Disting	Recognize	C	C	Comp	Know	
Differ Between Reality & Fantasy	C.2.3.2	-	Distinguish	-	S	-	Ana	-	
Recog Attempts to Manipulate	C.2.3.3	151	Interpret/Recog	Recognize	S	C	Ana	Know	
Interpret What is Read	C.2.4	143,144	Interpret	Interpret, Analyze	S	S	App	Ana	
Categ, Classify Wrds to Subject	C.2.5.1	-	Classify	-	S	-	App	-	
Use Synonyms, Antonyms, Homonyms	C.2.5.2	-	Use	-	S	-	App	-	Ana
Understand Compound Words	C.2.5.3	-	State	-	C	-	Know	-	
Expnd Root Wrds - Pref & Suffix	C.2.5.4	146	State/Use	Discover, Write	S	S	App	App	
Use Contextual Clues	C.2.5.5	145,146	Use/Derive	Infer/Solve	S	S	App	App	
Use References - Dict, Thesaurus	C.2.5.6	146	Use	Consult, Use	S	S	App	App	
Use ABC Order to Locate Inform	C.3.1.1	-	Use/Arrange	-	S	-	App	-	
Use Prts of Publ-Tble of Contnts	C.3.1.2	150	Find/Choose	Be Familiar With	S	C	App	Know	
Use of Library	C.3.1.3	150	Find/Locate	Be Familiar With	S	C	App	Know	
Organize Study Time	C.3.2.1	150	Organize	Review, Study	S	S	App	App	
Learn How to Review	C.3.2.2	150	Demonstrate/Use	Use	S	S	App	App	
Dev Strategy fr Writing Exams	C.3.2.3	150	Develop/Use	Develop, Use	S	S	App	App	
Independent Read Material-Enjoym	C.4.1	-	Select	-	S	-	Eval	-	
Choose Frm Fiction, Non-Fiction	C.4.2	-	-	-	S	-	Eval	-	
Prescribe a Time for Enjoy Read	C.4.3	-	-	-	S	-	Eval	-	
Undrstnd Denotation/Annotation	-	146	-	Dscuss, Arrnge, Wrt	-	S	-	App	
Awareness of Idiom	-	146	-	List	-	S	-	Know	
See a Reltnshp/Ideas;Comp/Cntrst	-	148	-	Understand	-	S	-	Comp	
Adjst Rate of Read to Locat Fcts	-	10,11	-	Read, Locate	-	S	-	App	
Adjst Rate of Read to Vrfy Info	-	10,11	-	Skim, Locate, Verify	-	S	-	App	
Adjst Rte of Read-Recall Matrial	-	149,153	-	Remember	-	S	-	App	
Adjst Rate of Read-Recreatn Rd	-	149,153	-	-	-	S	-	App	
Abil to Increase Read Speed	-	149,153	-	Read, Check, Apply	-	S	-	App	
Discs Aware Eye Mvmnt & Rd Rate	-	153	-	Discuss	-	C	-	Know	
Review Procdrs to Rapid Eye Move	-	153	-	Review, Apply	-	S	-	App	
Pract Skimming & Scanning Techn	-	153	-	Discuss, Apply	-	S	-	App	
Recog Fallacies(Hasty, General)	-	152	-	Recognize, Apply	-	S	-	App	
Recg Log Fallacies or Fsion-Caus	-	152	-	Recognize, Apply	-	S	-	App	
Recg Log Fallacies Either/or Arg	-	152	-	Recognize, Apply	-	S	-	App	
Recg Log Fallacies-Reasn in Crcl	-	152	-	Recognize, Apply	-	S	-	App	
Recg Log Fallacies-False Analgy	-	152	-	Recognize, Apply	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Recg Log Fallacies-Guilt Assoc,	-	152	-	Recognize, Apply	-	S	-	App	
Falacies-Post Hoc, Ergo Prp Hoc	-	152	-	Recognize, Apply	-	S	-	App	
Fallacies-Begging the Question	-	152	-	Recognize, Apply	-	S	-	App	
TRACK D: Media Skills									
TV Programming	D.1.1.1	-	Identify	-	C	-	Know	-	
Radio Programming	D.1.1.2	-	Identify	-	C	-	Know	-	
Pictures	D.1.1.3	-	Identify	-	C	-	Know	-	
Films	D.1.1.4	-	Identify	-	C	-	Know	-	
Merchandizing,Pkging,Positioning	D.1.1.5	-	Identify	-	C	-	Know	-	
Music	D.1.1.6	-	Identify	-	C	-	Know	-	
Dance	D.1.1.7	-	Identify	-	C	-	Know	-	
Find Theme in Varty of Non-Prnt	D.1.2	-	Determine/Identify	-	C	-	Comp	-	
Detr Bias Frm Varty Non-Prnt Med	D.1.3	182,183	Determine/Identify	Discuss,Discrim,Cmpr	C	S	Comp	App	
Deter Intnt of Influen/Manipula	D.2.1	182,183	Determine	Compare	S	S	Ana	Ana	
Deter Techniq of Influenc/Manipu	D.2.2	183	Determine/Identify	Examine, Exper	C	S	Comp	App	
Cmpr Impct of Ident-by Diff Mdia	D.2.3	182	Compare	Compare/Explore	S	S	Ana	Ana	
Comp/Cntrst Print Lit & Non-Prnt	D.2.4	182,183	Compare	Compare/Contrast	S	S	Ana	Ana	
Iden Emot Response to Non-Prnt	D.2.5	182,183	Identify/Describe	Discuss/Decide	C	S	Comp	App	
Idnt Persn Hbits/Choice in Media	D.3.1	-	Identify	-	C	-	Know	-	
Broadn Involv in Non Print Media	D.3.2	-	-	-	C	-	Know	-	
Aply Pers Prior or Choic of Mdia	D.3.3	-	Apply	-	S	-	App	-	
Cmbn Flm,Lit to=Synthsis of Valu	-	183	-	Synthesize	-	S	-	Eval	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
ALGEBRA 10									
POLYNOMIALS AND POWERS									
Polynomial Terminology	-	10-A-1	-	Define/Illustrate	-	S	-	Comp	
Positive & Neg Integral Expon	-	10-A-2	-	Evaluate	-	S	-	App	
Properties of Powers	-	10-A-3	-	Simplif Integral Exp	-	S	-	App	
Operations of Polynomials	-	10-A-4	-	Perform	-	S	-	App	
Various Factoring Methods	-	10-A-5	-	Application	-	S	-	App	
SOLVING EQUATIONS (ONE UNKNOWN)									*
Find Solution Set/Eval an Expres	-	10-B-1	-	Distinguish Between	-	S	-	Comp	
One Variable Equations	F3.2	10-B-2	Solve/Use Rever Opera	Solve and Check	S	S	App	App	
Various Equations	F3.3	10-B-3	Solve for the Variable	Solve and Check	S	S	App	App	
Word Statements	F4.1,4.2	10-B-4	Transl to Alg Statement	Transl to Mathem Trm	S	S	Ana	Ana	
Single Equation/Vari Problems	F4.3 (all prt)	10-B-5a,b	Solve & Check	Solve for 1 variable	S	S	Ana	Ana	
Absolute Value	-	10-B-6	-	Recognize/Solve Equa	-	S	-	App	
LINEAR INEQUALITIES									*
Solution Sets of Inequalities	-	10-C-1	-	Graph on Number Line	-	S	-	App	
Various Inequalities	-	10-C-2	-	Solve using Vari Rul	-	S	-	App	
Inequal Involving Fractions	-	10-C-2	-	Solve	-	S	-	App	
SOLVING QUADRATIC EQUATIONS									*
Quadratic Equation	-	10-D-1	-	Recognize	-	C	-	Know	
Quad Equat in Non-Standrd Frm	-	10-D-2	-	Put into Standrd Frm	-	S	-	App	
Factor and Solve Theorem	-	10-D-3	-	Understand It	-	S	-	Comp	
Quadratic Equat (Sngl Quad Trm)	-	10-D-4	-	Factor and Solve	-	S	-	App	
Quadratic Equat (Mltpl Quad Trm)	-	10-D-5	-	Solve	-	S	-	App	
Quadratic Equation, Word Probl	-	10-D-6	-	Solve	-	S	-	Ana	
REAL NUMBERS									
Real Number Terminology	-	10-E-1	-	Define/Illustrate	-	S	-	Comp	
Terms from Sect 10-E-1	-	10-E-2	-	Relate to Nmbr Line	-	S	-	Comp	
Terminating/Repeating Decimals	-	10-E-3	-	Convert back & Forth	-	S	-	App	
Check Computational Answers	-	10-E-4	-	Use Estimation	-	S	-	App	
Irration No & Expres-sq Rt only	-	10-E-5	-	Expre in Smplest Frm	-	S	-	App	
Operat with Irrat No-sq Rt only	-	10-E-6	-	Perfrm the operation	-	S	-	App	
Prob Involv Pythagorean Theorem	-	10-E-7	-	Use Iratnl No to Slve	-	S	-	App	
Monomial and Binom Denominators	-	10-E-8	-	Rationalize	-	S	-	App	
RELATIONS AND FUNCTIONS									*
Relations/Functions/Slope	-	10-F-1	-	Define/Illustrate	-	S	-	Comp	
Points Designat by Order Pairs	-	10-F-2	-	Plot in coordnt Syst	-	S	-	App	
Linear Equation	-	10-F-3	-	Calcul Tble of Value	-	S	-	App	
Linear Equations	-	10-F-4	-	Draw Graph	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Non-Linear Equation	-	10-F-5	-	Table and Graph	-	S	-	App	
Two Points on a Line	-	10-F-6	-	Find Slope	-	S	-	App	
Distance Formula	-	10-F-7	-	Calc Dist Btw 2 pnts	-	S	-	App	
Two Points on a Line	-	10-F-8a)	-	Deter Equat of line	-	S	-	App	
One Point and the Slope	-	10-F-8b)	-	Determine Equation	-	S	-	App	
SYSTEMS OF LINEAR SIMULTANEOUS EQUATIONS (TWO UNKNOWNS)									*
Solving Linear Equations	-	10-G-1a,b	-	Use Grphng/Subs/Elim	-	S	-	App	
Word Problems in Two Variables	-	10-G-2	-	Solve	-	S	-	Ana	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
ALGEBRA 11									
TRACK A: Arithmetic									•
Operatns(wi/wiout) calculators	A1.1	-	Perform Operations	-	S	-	App	-	
Decimals	A1.2	-	Convert	-	S	-	App	-	
General Word Problems	A1.3	PrtPrvK	Solve	-	S	-	App	-	
Signed Number/Absolute Value	A2.1	10-B-6	Define/Solve	-	C	-	Know	-	
Absolute Value	A2.2	10-B-6	Write	-	S	-	App	-	
Sum	A2.3	Prev K	Find Sum	-	S	-	App	-	
Difference	A2.4	Prev K	Subtract	-	S	-	App	-	
Product	A2.5	Prev K	Write Correctly	-	S	-	App	-	
Quotient	A2.6	Prev K	Write Correctly	-	S	-	App	-	
Fractions/Decimals/Integers	A2.7	PrtPrvK	Apply Oper & Solve	-	S	-	App	-	
Signed Numbers Problems	A2.8	Prev K	Solve	-	S	-	App	-	
Operations/Signs Problems	A3.1 A3.5	Prev K	Solve/Step by Step	-	S	-	App	-	
TRACK B: Polynomials									•
Polynomial Terminology	B1.1	10-A.1	Solve	Define/Illustrate	C	C	Know	Know	
Algebraic Expressions	B1.2	Prev K(9)	Evaluate	-	S	-	App	-	
Algebraic Expressions	B1.3	Prev K(9)	Simplify	-	S	-	App	-	
Algebraic Polynomials	B1.4	Prev K(9)	Classify	-	S	-	Comp	-	
Polynomials	B1.5	Prev K(9)	Decreas/Increas Order	-	S	-	Comp	-	
Polynomials	B1.6	10-A-4ab 11-A-2ab	Add/Subtract	Perform	S	S	App	App	
Polynomial Multiplication	B1.7.1 B1.7.3	10-A-4C 11-A-2c	Multiply	Perform	S	S	App	App	
Polynomial Division	B-1.8	10-A-4d 11-A-2d	Divide	Perform	S	S	App	App	
Linear Equations	B1.9	Prev K(9)	Solve	-	S	-	App	-	
Exponent Rules	B2.1.1 -1.7, 2.1.10	11-A-5	Solve	Simplify	S	S	App	App	
Rational Exponent Rules	B2.1.8 2.1.9	11-A-4	Solve	Evaluate	S	S	App	App	
Exponent Rules	B2.2	11-A-4,5	Solve	Evaluate	S	S	App	App	
Scientific Notation/Decimals	B2.3	-	Write	-	S	-	App	-	
Sc. Notation/Decimals	B2.4	-	Find product	-	S	-	App	-	
Sc. Notation/Decimals	B2.5	-	Convert	-	S	-	App	-	
Factors of Monomials	B3.1	11-A-3a	Write	Factor	S	S	App	App	
Factors of Polynomials	B3.2	11-A-3a	Write	Factor	S	S	App	App	
Binomials	B3.3.1	10-4-4c 11-A-2c	Multiply Mentally	Multiply	S	S	App	App	
Trinomials	B3.3.2	11-A.3 bcde	Factor	Factor	S	S	Ana	Ana	
Special Products	B-3.4	11-A-3bcde 10-A-5bcde 11-A-7	Factor	Factor	S	S	Ana	Ana	
Factoring Techniques	B3.5	Covered	Factor/Solve	-	S	-	Ana	-	
Polynomial Word Problems	B4.1,4.2 4.3	Covered	Solve	-	S	-	Syn	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Polynomial/Powers Terminology	-	11 A-1	-	Define	-	C	-	Know	
Factoring	-	11 A7b,c	-	Factor	-	S	-	App	
TRACK C: Real Numbers									
Real Number Terminology	C1.1	Partially	Identify/Define	-	C	-	Know	-	
Square Root Operation	C1.2	-	Calculate	-	S	-	App	-	
Irrational Numbers	C1.3	-	Classify	-	C	-	Know	-	
Radicals Terminology	C2.1	-	Matching/Multi Choice	-	C	-	Know	-	
Radical Expressions	C2.2	11-D-1 a to e	Reduce	Express in smpl frm	S	S	App	App	
Operations	C2.3	11-D-2 a to d	Perform	Perform	S	S	App	App	
Square Root Approximation	C3.1	-	-						
- Without Calculator	C3.11	-	Calculate	-	S	-	App	-	
- With Calculator	C3.1.2	-	Calculate	-	S	-	App	-	
Nth Root Approximation (wi cal)	C3.2	-	Calculate	-	S	-	App	-	
Irrational Number Problems	C4.1.1 1.3	-	Step by Step solution	-	S	-	Ana	-	
Problem Solution	C4.1.4	-	Estimate Value	-	S	-	App	-	
Problem Solution	C4.1.5	-	Approx. with Calculator	-	S	-	App	-	
Radical Equations	-	11-D-3 a to d	-	Solve	-	S	-	App	
TRACK D: Solving Equations									
One Variable Linear Equations	D1.1	-	Replacement/Estimate	-	S	-	App	-	
One Variable Linear Equations	D1.2	-	Solve	-	S	-	App	-	
One Variable in Terms of Another	D1.3	-	Solve	-	S	-	App	-	
Linear Equation Word Problems	D1.4	11-B-1a,b 11-B-3 a to d	Translate/Solve	Solve	S	S	App	App	
Quadratic Equations	D2.1	-	Solve	-	S	-	App	-	
"No Solution" Case	D2.2	-	Recognize	-	S	-	Know	-	
Cubic Equations	D2.3	-	Solve	-	S	-	App	-	
Variables to Power of 2 or 3	D2.4	-	Solve	-	S	-	App	-	
Quadratic Equation Word Problems	D2.5	10-D-6 11-B-3c,d	Solve	Solve	S	S	App	App	
Graphing Terminology	D3.1	Prev K	Mstry ofConcepts/Skills	-	S	-	App	-	
Graphing	D3.2	Prev K	Draw/Write	-	S	-	App	-	
Graphing	D3.3	Prev K	Draw	-	S	-	App	-	
Pairs of Linear Equations	D3.4	11-E-1a	Solve Graphically	Solve	S	S	App	App	
Pairs of Linear Equations	D3.5	11-E-1b,c	Solve	Solve	S	S	App	App	
Pairs of Linear Equations	D3.6	11-E-2	Solve	Solve	S	S	App	App	
Quadratic Equation	D-4-1	11-C-3	Graph	Identify/Graph	S	S	App	App	
Quadratic Equations	D-4-2	11-B-2 11-B-4 a, b, c	Solve	Solve	S	S	App	App	
Irrational Roots	D-4-3	-	Compute	-	S	-	App	-	
Roots of Quadratic Equations	D4.4	-	Estimate	-	S	-	App	-	
Quadratic Equations Word Problms	D4.5	11-B-3cd	Solve	Solve	S	S	App	App	
Assorted Word Problems	D5.1 to D5.2.5	Covered	Solve	-	S	-	App	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
<u>The Quadratic Function</u>									
Quadratic Function	-	11-C-1	-	Define	-	C	-	Know	
Quadratic-NonQuadratic Function	-	11-C-2	-	Distinguish Between	-	S	-	Comp	
Parts of Quadratic Equation	-	11-C-4	-	Define/Illustrate	-	S	-	Comp	
Maxima/Minima	-	11-C-5	-	Graph/Determine	-	S	-	App	
Maxima/Minima	-	11-C-6	-	Apply rule	-	S	-	App	
Analyse Quadratic Equations	-	11-C-7	-	Compltng the sq mth	-	S	-	Ana	
Quadratic Function/Equation	-	11-C-8	-	Illustrate Diffrnce	-	S	-	Comp	
<u>Statistics and Probability</u>									
Collecting Raw Data	-	11-G-1	-	Apply Methods	-	S	-	Comp	
Cntrl Tendency:Non Grouped Data	M5-10K-1	11-G-2	-	Define/Illustrate	-	S	-	App	
Grouped Raw Data	-	11-G-3	-	Define	-	C	-	Know	
Central Tendency: Grouped Data	-	11-G-4	-	Define/Ilustrate	-	S	-	App	
Frequency Histogram	-	11-G-5	-	Construct	-	S	-	App	
Common Distributions	-	11-G-6	-	Graph/Nme/Charactrze	-	S	-	App	
Range/Standard Deviation	-	11-G-7	-	Calculate	-	S	-	App	
Normal Curve/Standard Deviation	-	11-G-8	-	Aply to decsion mkng	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
ALBEGRA 12									
TRACK A: Relations, Functions, Variations									*
Relations Terminology	A1.1	12 A-1 12 A-3	List/Indicate	Define/Illustrate	S	S	App	Comp	
Terminology	Partly	12 A-1	-	Define/Illustrate	-	S	-	Comp	
Relations/Functions	-	12 A-2	-	Identify	-	S	-	Comp	
Relation	-	12 A-4	-	Draw Graph	-	S	-	App	
Critical Terminology	-	12 A-5	-	Sketch Graph	-	S	-	App	
Inverse	-	12 A-6	-	Graph	-	S	-	App	
Direct Variation	A-2 All Prts	11-F 1 to 5	Define/Solve Problems	Defne/Trnslate/Solve	S	S	App	App	
Inverse Variation	A-3 All Prts	11-F 1 to 5	Define/Solve Problems	Defne/Trnslate/Solve	S	S	App	App	
Joint Variation	A-4 All Prts	11-F 1 to 5	Define/Solve Problems	Defne/Trnslate/Solve	S	S	App	App	
Combined Variation	A-5 All Prts	11-F 1 to 5	Define/Solve Problems	Defne/Trnslate/Solve	S	S	App	App	
TRACK B: Analytic Geometry (Optional)									
Relations Terminology	A1.1	Prev K	Define/Apply	-	S	-	App	-	
Graphing	A1.2	Algebra 10-F-2	Plot a graph	Plot Points	S	S	App	App	
Cartesian Coordinates	A1.3	Algebra 10-F-2	Write Coordinates	Plot Points	S	S	App	App	
Slope of a Line	A1.4	Algebra 10-F-6	State Slope	Find the Slope	S	S	App	App	
Midpoint of a Line Segment	A1.5	-	State Midpoint	-	S	-	App	-	
Distance Between Two Points	A1.6	Algebra 10-F-7	State Distance	Calculate Distance	S	S	App	App	
Slope of a Perpendicular Line	A1.7	-	State the Slope	-	S	-	App	-	
Slope of Parallel Lines	A1.8	-	State the Slope	-	S	-	App	-	
Two Variable Linear Equation	A2.1	-	Application	-	S	-	App	-	
Linear Equations (Optional)	A2.2	Algl0F-3, 4 (prtly)	Graph	Table and Graph	S	S	App	App	
Systems of Linear Equations	A2.3	Algl0Gla Alg11Ela	Locate Intersection	Solve	S	S	App	App	
Derive Linear Equations	A2.4	Algl0F8ab (Prtly)	Derive	Determine Equation	S	S	Ana	App	
Crcles, Parabls, Ellpse, Hyprbls	A3.1	12-II-G	Compare and Identify	Identify	S	S	Comp	Comp	
Circle Equations	A3.2.1	12-II-B-3,5	Standard Form/Sketch	Standard Frm/Sketch	S	S	Ana	Ana	
Parabola Equations	A3.2.2	12-II-C-3a,b	Standard Form/Sketch	Standard Frm/Sketch	S	S	Ana	Ana	
Ellipse Equations	A3.2.3	12-II-D-3,5	Standard Form/Sketch	Standard Frm/Sketch	S	S	Ana	Ana	
Hyperbola Equations	A3.2.4	12-II-E-3	Standard Form/Sketch	Standard Frm/Sketch	S	S	Ana	Ana	
Conic Sections (Optional)	A3.3	-	Sketch	-	S	-	Ana	Ana	
Systems of Equations	A4.1	12-II-F-lab	Determine Solutions	Sketch/Intersections	S	S	App	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Systems of Equations	A4.2	-	Solve Graphically	-	S	-	App	-	
Linear-Quadratic Systems	A4.3	12-II-F 2a	Solve Algebraically	Solve Algebraically	S	S	App	App	
Quadratic-Quadratic Systems	A4.4	12-II-F 2b	Solve Algebraically	Solve Algebraically	S	S	App	App	
Linear-Quadratic Problems	A5.1	-	Solve/Check	-	S	-	App	-	
Quadratic-Quadratic Problems	A5.2	-	Solve/Check	-	S	-	App	-	
TRACK C: Matrices and Determinants									
Matrices Terminology	C-1.1	-	Define/Recog/Apply	-	S	-	App	-	
Addition/Subtraction	C-1.2	-	Perform Exercises	-	S	-	App	-	
Scalar/Matrix Multiplication	C-1.3	-	Multiply	-	S	-	App	-	
Operations	C-1.4.1-4.4	-	Perform	-	S	-	App	-	
Determinant/Minor/Order	C-2.1	-	Define	-	C	-	Know	-	
Properties	C-2.2	-	State Properties	-	C	-	Know	-	
Determinants	C-2.3	-	Application	-	S	-	App	-	
Matrix Inverse	C-3.1	-	Define	-	C	-	Know	-	
2 x 2 Matrix	C-3.2	-	Calculate Inverse	-	S	-	App	-	
3 x 3 Matrix (Optional)	C-3.3	-	Calculate Inverse	-	S	-	App	-	
Matrix Equation	C-4.1	-	Define	-	C	-	Know	-	
Matrix Equation	C4.2	-	Solve	-	S	-	App	-	
Coeffi Mtrx/Ordrd Pair & Triple	C-5.1	-	Define	-	C	-	know	-	
Linear Equations	C-5.2	-	Solve	-	S	-	App	-	
TRACK D: Progression, Series, and Binomial Expansions									
Sequences/Progressions/Series	D1.1	12 E-1	Define/Illustrate	Define/Illustrate	C	C	Know	Know	
Progressions and Series	D1.2	12 E-1	Identify/Classify	Define/Illustrate	C	C	Know	Know	
Definitions (additional ones)	-	12 E-1	-	Define/Illustrate	-	C	-	Know	
Arith Prgress (Genrl or nth trm)	D2.1	12 E-2	Define	Identify	C	C	Know	Know	
Arithmetic Progression	D2.2	12 E-3	Calculate nth Term	Calculate nth Term	S	S	App	App	
Arithmetic Mean(s)	D2.3	12 E-4	Calculate Mean(s)	Calculate Mean(s)	S	S	App	App	
Arithmetic Progression	D2.4	12 E-5	Calculate Sum	Calculate Sum	S	S	App	App	
Sigma Notation	D2.5	-	Evaluate	-	S	-	App	-	
Sigma Nat (Linear Equations)	D2.6	-	Solve	-	S	-	App	-	
Arithmetic Progression Problems	D2.7	-	Solve	-	S	-	App	-	
Geom Prgress (Genrl or nth trm)	D3.1	12 E6	Define	Identify	C	C	Know	Know	
Geometric Progression	D3.2	12 E7	Calculate nth Term	Calculate nth Term	S	S	App	App	
Geometric Mean(s)	D3.3	12 E8	Calculate Mean(s)	Calculate Mean(s)	S	S	App	App	
Geometric Progression	D3.4	12 E9	Calculate sum	Calculate Sum	S	S	App	App	
Sigma Notation (Optional)	D3.5	-	Evaluate	-	S	-	App	-	
Infinite Geometric Progression	D3.6	12-E-11	Calculate sum	Calculate Sum	S	S	App	App	
Geometric Progression Problems	D3.7	12-E-12	Solve	Solve	S	S	App	App	
Limit of Sequence	-	12-E-10	-	Calculate	-	S	-	App	
Compound Interest/Present Value	-	12-E-13	-	Solve Word Problems	-	S	-	App	
Annuities/Mortgages	-	12-E-14	-	Solve Word Problems	-	S	-	App	
General Binomial Expansion	D4.1	-	Define	-	C	-	Know	-	
Powers of Binomials	D4.2	-	Expand	-	S	-	App	-	
Natural Exponents	D4.2.1	-	Expand	-	S	-	App	-	
Fractional Exponents	D4.2.2	-	Expand	-	S	-	App	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Binomial Expansion	D4.3	-	Find nth Term	-	S	-	App	-	
Approximate Roots (Optional)	D4.4	-	Calculate Approx Roots	-	S	-	App	-	
Compound Interest	D4.5	12-E-13 (partly)	Solve Word Problems	Solve Word Problems	S	S	App	App	
TRACK E: Permutations, Combinations, Probability									
Counting Problem Terminology	E1.1	-	Illustrate	-	C	-	Comp	-	
Number of Elements	E1.2	-	Determine	-	S	-	App	-	
Word Problems (Optional)	E1.3	-	Solve	-	S	-	App	-	
Permutation Terminology	E2.1	Included	Define	-	C	-	Know	-	
Linear Permutations	E2.2.1	12-F-2 12-F-3	Calculate How Many	Calculate How Many	S	S	App	App	
Linear Permutations	E2.2.2	12-F-4	Calculate How Many	Calculate How Many	S	S	App	App	
Circular Permutations	E2.3	-	Calculate How Many	-	S	-	App	-	
Permutation Word Problems	E2.4	Included	Solve	-	S	-	App	-	
Combinations Terminology	E3.1	Included	Define	-	C	-	Know	-	
Combinations vs Permutations	E3.2	Included	Contrast	-	S	-	Comp	-	
Combinations	E3.3	12-F-5 12-F-6	Calculate How Many	Calculate How Many	S	S	App	App	
Combinations/Permutations/Prob	E3.4	Included	Solve	-	S	-	App	-	
Binomial Expansion	E3.5	12 F 7 (Partly)	Define	-	C	-	Know	-	
Combination Notation	E3.6.1	-	Expand binomials	-	S	-	App	-	
Combination Notation	E3.6.2	-	Find nth Term	-	S	-	App	-	
Probability Definitions	E4.1	12-F.1 (Partly)	Solve questions	Define/Illustrate	S	C	App	Comp	
Graphs/Venn Diagrams	E4.2	-	Illustrate	-	C	-	Comp	-	
Probability Word Problems	E4.3	-	Solve	-	S	-	App	-	
An Event	-	12-F-8a	-	Calculate Probablity	-	S	-	App	
Mutually Exclusive Events	-	12-F-8b	-	Calculate Probablity	-	S	-	App	
Independent Events	-	12-F-8c	-	Calculate Probablity	-	S	-	App	
Dependent Events	-	12-F-8d		Calculate Probablity	-	S	-	App	
Quadratic Equations, Inequalities and Complex Numbers									
Complex Numbers/Radicals	-	12-B-1	-	Define/Illustrate	-	S	-	Comp	
Complex Numbers	-	12-B-2	-	Expres in Stndrd Frm	-	S	-	App	
Complex Numbers	-	12-B-3	-	Perform Operations	-	S	-	App	
Quadratic Equations	-	12-B-4	-	Solve	-	S	-	App	
Quadratic Equations	-	12-B-5	-	Solve Word Problems	-	S	-	App	
Quadratic Equations	-	12-B-6	-	Dtrmne Nture of Root	-	S	-	App	
Quadratic Equations	-	12-B-7	-	Fnd sum, Prdct of Rt	-	S	-	App	
Quadratic Equations	-	12-B-8	-	Determine from Roots	-	S	-	App	
Equations of Degree > 2	-	12-B-9	-	Slve as Quadrtic Eq	-	S	-	App	
Radical Equations	-	12-B-10	-	Solve	-	S	-	App	
Quadratic Inequalities	-	12-B-11	-	Solve	-	S	-	App	
Exponential and Logarithmic Functions									
Logarithm Terminology	-	12-D-1	-	Define/Illustrate	-	S	-	Comp	
Laws of Exponents	-	12-D-2	-	Apply	-	S	-	App	
Exponential/Logarithmic Fnctions	-	12-D-3	-	Grph/Identify Proper	-	S	-	App	
Exponential/Logarithmic Equatns	-	12-D-4	-	Solve	-	S	-	App	
-	-	12-D-5		Solve	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION I	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
GEOMETRY - TRIGONOMETRY 10									
GENERAL OBJECTIVES									
Inductive/Deductive Reasoning	-	10 - 1	-	Describe	-	S	-	Comp	
Inductive/Deductive Reasoning	-	10 - 2	-	App	-	S	-	App	
Inductive/Deductive Reasoning	-	10 - 3	-	Recognize/Justify	-	S	-	Ana	
Prove Theorems	-	10 - 4	-	Use Ddctive Resoning	-	S	-	App	
Guess a Gen Rule or Formula	-	10 - 5	-	Use Indctve Resoning	-	S	-	App	
Induct Reasoning Formulae/Rules	-	10 - 6	-	Prve-Dsprve-Ddctve R	-	S	-	App	
Direct or Indirect Proof	-	10 - 7	-	Descrbe Charactrstcs	-	S	-	Comp	
Direct or Indirect Proof	-	10 - 8	-	Apply to Geom Therms	-	S	-	App	
A. POINTS, LINES, PLANES, AND ANGLES									*
Point/Line/Plane/Angle Termin	I1.1, I2.1 (partly)	10-A-1	Define	Define/Illustrate	C	S	Know	Comp	
Undefined Terms	-	10-A-2	-	Show Reltionship Btw	-	S	-	Comp	
Various Angles	I2.2	10-A-3	Define	Define/Illustrate	C	S	Know	Comp	
Protractor Use	I2.4	10-A-4	Meas Angles in Degrees	Meas Angle Size	S	S	App	App	
Protractor Use	I2.5	10-A.5	Draw Angles	Draw an Angle	S	S	App	App	
Properties of Operations (consists of four properties)	-	10-A.6	-	State and Apply	-	S	-	App	
Various Properties (consists of four properties)	-	10-A.7	-	State and Apply	-	S	-	App	
Angles/Lines Terminology (consists of six definitions)	I2.2 (partly)	10-A.8	Define	Define/Identify	C	S	Know	Know	
Two-Column Format	11-A-5.1	10-A.9	Write Proofs	Write Formal Proofs	S	S	App	Ana	
Vertically Opposite Angles	-	10-A.10	-	Prove They are Equal	-	S	-	App	
Point/Line/Plane Postulates (consists of six postulates)	-	10-A.11	-	State and Apply	-	S	-	App	
Ruler and Protractor Postulate	11-B-1.3	10-A.12	Solve Problems	Apply	S	S	App	App	
Line/Point/Angle Theorems (consists of five theorems)	-	10-A.13	-	State and Apply	-	S	-	App	
B. PARALLEL LINES AND PLANES, AND POLYGONS									
Parallel Lines/Plnes/Plygon Def	-	10-B-1	-	Define/Illustrate	-	S	-	Comp	
Parallel Lines Cut by Trnsversal	-	10-B-2	-		-	S	-	App	
Postulates/Theorems/Corollaries (consists of 14 postulates, theorems, and corollaries)	-	10-B-3	-	State and Apply	-	S	-	App	
Triangle Classification	I3.1	10-B-4	Define/Illustrate	Classify	S	S	Comp	Comp	
C. CONGRUENT TRIANGLES									*
Triangle Terminology	-	10-C-1	-	Define/Illustrate	-	S	-	Comp	
Proving Two Triangles Congruent (consists of five postulates and theorems)	-	10-C-2	-	State,Aply Postlt Th	-	S	-	App	
Triangle Postulates & Theorems (consists of six postulates and theorems)	-	10-C-3	-	State and Apply	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION I	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
D. PARALLELOGRAMS									
Parallelogrm/Trapezoid Terminol	I4.1	10-D-1	Define/Identify	Define/Illustrate	S	S	Comp	Comp	
Trapezoid Terminology	-	10-D-2	-	Define	-	C	-	Know	
Parallelogram Theorems (consists of seven theorems)	-	10-D-3	-	State and Apply	-	S	-	App	
Transvrsal/Diagonl/Other Theorms (consists of seven theorems)	-	10-D-4	-	State and Apply	-	S	-	App	
E. SIMILAR POLYGONS									
Ratio/Proportion Terminology	-	10-E-1	-	Define	-	C	-	Know	
Properties of Proportions	-	10-E-2	-	State and Apply	-	S	-	App	
Given Proportion	-	10-E-3	-	Slve for unknwn Term	-	S	-	App	
Similar Figures	-	10-E-4	-	Identify	-	C	-	Know	
Sim Fig Postulates & Theorems (consists of three postulates and theorems)	-	10-E-5	-	State and Apply	-	S	-	App	
Triangle Proportionality Theorem	-	10-E-6	-	State and Apply	-	S	-	App	
F. RIGHT TRIANGLES									
Geometric Mean	-	10-F-1	-	Define	-	C	-	Know	
Pythagorean Theorem	-	10-F-2	-	Prove and Apply	-	S	-	App	
Pythagorean Theorem	-	10-F-3	-	State, Apply Convrse	-	S	-	App	
Special Right Angle Theorems	-	10-F-4	-	State and Apply	-	S	-	App	
TRIGONOMETRY									
Trigonometric Terminology	-	10 Prt II -2	-	Define/Illustrate	-	S	-	Comp	
Sides/Angles of Right Triangles	-	10 Prt II -2		Use Trig Fnct to Slv	-	S	-	App	
Trigonometric Ratios	-	10 Prt II -3	-	Deter valu;Calc, Tbl	-	S	-	App	
Trigonometric Ratio Wrd Prblms	-	10 Prt II -4		Slve Using Calculat	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
GEOMETRY 11									
TRACK A: Deductive Reasoning									
Conditional Statements	A1.1.1	-	Develop Knowledge	-	S	-	Comp	-	
Cndition1 Statement Trminology	A1.1.2.1 2.5	-	Write/Draw/Identify	-	S	-	App	-	
Equivalent Statements	A1.2	-	Write	-	S	-	App	-	
Invalid Conclusions	A2.1	-	Write	-	S	-	App	-	
Argument Conclusions	A2.2	-	Recognize	-	S	-	Ana	-	
Conclusions	A2.3	-	Write Arguments	-	S	-	Ana	-	
Definitions	A3.1	-	Define	-	C	-	Know	-	
Terms/Postulates	A3.2	-	Justify	-	C	-	Comp	-	
Line and Plane	A3.3	10-A-1	Describe	Define/Illustrate	C	C	Comp	Know	
Direct Proof Arguments	A4.1	10-7	Define	Describe	C	C	Know	Know	
Proving Theorems: Direct Method	A4.2	10-8	Justify each step	Apply	C	S	Comp	App	
Indirect Method	A4.3	10-7	Define	Describe	C	C	Know	Know	
Theorem: Indirect Method	A4.4	10-8	Application	Apply	S	S	App	App	
Points/Lines/Planes Theorems	A5.1	10-A-9	Write Proofs	Write Formal Proofs	S	S	App	App	
Theorems/Problems	A5.2	-	Write Proofs	-	S	-	App	-	
TRACK B: Lines and Angles									
Description	B1.1	-	Perform Exercises	-	C	-	Comp	-	
Points, Lines, Planes Postulates	B1.2	-	List Postulates	-	C	-	Know	-	
Dstance Betwn Points Postulates	B1.3	10-A-12	Solve Problems	Apply	S	S	App	App	
Ray and Angle Postulates	B1.4	10-A-1,3 (partly)	Solve Problems	-	S	-	App	-	
Lines/Angles/Rays Terminology	B2.1	-	Define	Define/Illustrate	C	C	Know	Know	
Previous Definitions/Postulates	B2.2	-	Application	-	S	-	App	-	
Angle Postulates	B3.1	-	List/Describe/Define	-	C	-	Know	-	
Prev Definit/Postulates/Theorems	B3.2	-	Justify	-	C	-	Comp	-	
Proving Theorems	B3.3	-	Write complete Proofs	-	S	-	App	-	
Bisect Line Segment	B4.1	11 A 2	Use and Apply	Bisect	S	S	App	App	
Construct Perp. Bisector	B4.2	-	Use and Apply	-	S	-	App	-	
Line Perp. to Another Line	B4.3	11 A 3	Use and Apply	Construct	S	S	App	App	
Perp. from Point Not on Line	B4.4	11 A 4	Use and Apply	Construct	S	S	App	App	
Bisect an Angle	B4.5	11 A 1	Use and Apply	Bisect	S	S	App	App	
Construct an Angle	B4.6	-	Use and Apply	-	S	-	App	-	
Construct a Line Parallel	B4.7	11 A 5	Use and Apply	Construct	S	S	App	App	
Divide Line Segment	B4.8	-	Use and Apply	-	S	-	App	-	
Lines/Angles Problems or Proofs	B5.1	-	Solve/Write	-	S	-	Ana	-	
TRACK C: Congruent Triangles									
Triangle Terminology	C1.1	10-C-1 (partly)	Define	Define/Illustrate	C	S	Know	Comp	
Triangles	C1.2	10-C-2	Classify/Describe	State/Apply	C	S	Comp	App	
Previous Definitions Postulates	C1.3	-	Solve Problems	-	S	-	App	-	
Congruence of Triangles	C2.1	-	Proofs	-	S	-	App	-	
Isosceles Triangles	C2.2	10-3a,b	Prove	State/Apply	S	S	App	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Previous Theorems/Problems	C2.3	-	Application	-	S	-	App	-	
Congruent Triangle Problems	C3.1	-	Write Proofs/Solutions	-	S	-	App	-	
TRACK D: Similarity and Trigonometric Ratios									
Ratio/Proportion Terminology	D1.1	10-E-1 (partly)	Define	Define	C	C	Know	Know	
Side Splitter Theorem	D1.2	-	Prove	-	S	-	Comp	-	
Proportions	D1.3	-	Solve Problems	-	S	-	App	-	
Sim Triangle/Scale Drawings	D1.4	-	Identify/Construct	-	S	-	App	-	
Angle/Perimeter/Area Theorems	D1.5	-	Prove	-	S	-	Comp	-	
Application	D1.6	-	Prove	-	S	-	App	-	
Altitude/Corollaries	D2.1	-	Prove	-	C	-	Comp	-	
Pythogoras Theorem	D2.2	10 F 2	Prove	Prove	C	C	Comp	Comp	
Triangle Theorems	D2.3	10 F 4ab	Solve/Apply	State/Apply	S	S	App	App	
Side of Right Triangle	D2.4	-	Find Length	-	S	-	App	-	
Trigonometric Ratios	D2.5	-	Define/Apply	-	S	-	App	-	
Triangles	D2.6	-	Solve	-	S	-	App	-	
Irrational Radical Expressions	D2.7	-	Express as	-	S	-	App	-	
Trig Ratio Problems	D2.8	-	Solve/Diagram	-	S	-	App	-	
General Word Problems	D3.1	-	Solve/Draw	-	S	-	App	-	
TRACK E: Area and Volume									
Area Terminology	E1.1	11-C-1	Define	Define	C	C	Know	Know	
Area Definitions/Postulates	E1.2	11-C-4ab cd Partly	State	Find Areas	S	S	App	App	
Areas	E1.3	11-C-4def	Calculate	Calculate	S	S	App	App	
Circles	E1.4	11-C-3 11-C-4g	Areas/Circumference	Area/Circumference	S	S	App	App	
Surface Areas/Volumes	E1.5	11D2 a-e	Calculate	Find	S	S	App	App	
Perimeter/Area/Volume Problems	E2.1	-	Solve	-	S	-	App	-	
Area/Volume Terminology	-	11-D-1	-	Define/Illustrate	-	C	-	Know	
Perimeter of 3 and 4 sided figrs	-	11-C-2	-	Find	-	S	-	App	
Circle Terminology	-	11-B-1	-	Define/Illustrate	-	C	-	Know	
Post,Theorms-Crcl,Tang,Radi,Chrd (consists of eighteen postulates, theorems, and corollaries)	-	11-B-2	-	State/Apply	-	S	-	App	
Part II: Analytic Geometry									
Relations Terminology	-	11-II-1	-	Define/Illustrate	-	C	-	Know	
Vertical Line Test	-	11-II-2	-	Apply	-	S	-	App	
Slpe/Mdpnt/Lngth/Eq-line segment	12 A1.4, 5,6	11-II-3	State	Determine	S	S	App	App	
Given: Points/Intercepts/Slope	12 A II 4 (prtly)	11-II-4	Graph Linear Equation	Graph Straight Line	S	S	App	App	
Given: Equation in Standard Frm	-	11-II-5	-	Deter Various Things	-	S	-	App	
Slope Relationship	-	11-II-6	-	Deter Parllel/Perpen	-	S	-	App	
Given: Various Information	12 A 2.4	11-II-7	Derive Linear Equation	Deter Equatn of Line	S	S	App	App	
Given: Three Points	-	11-II-8	-	Deter Collinearity	-	S	-	App	
Triangle Word Problems	-	11-II-9	-	Solve Use Coord Geom	-	S	-	App	
Triangles/Convex Polygons	-	11-II-10	-	Determine Areas	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Collinearity of three Points	-	11-II-11	-	Determine	-	S	-	App	
Line and Point Outside Line	-	11-II-12	-	Deter Distance Betwn	-	S	-	App	
Word Problems	-	11-II-13	-	Solve Use Analy Geom	-	S	-	App	
Part III: Trigonometry									
Angle Terminology	-	11-III-1	-	Defne/Illus-Diag/Exm	-	S	-	Comp	
Angle in Standard Position	-	11-III-2	-	Sketch	-	S	-	App	
Trig Ratios/Distance frm Origin	-	11-III-3	-	Determine	-	S	-	App	
Signs on Trig Ratios	-	11-III-4	-	Determne/Constr Tble	-	S	-	App	
Given: One Trig Ratio & Quadrant	-	11-III-5	-	Det Remn 5 Trig Rtio	-	S	-	App	
Reference Angle	-	11-III-6	-	Determine	-	S	-	App	
With Calculators/Tables	-	11-III-7	-	Detrmine Trig Values	-	S	-	App	
Right Triangle Word Problems	-	11-III-8	-	Slve Usng Trig Ratio	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
TRIGONOMETRY 12									
TRACK A: Analytic Geometry									
Relations Terminology	A1.1	Prev K	Define/Apply	-	S	-	App	-	
Graphing	A1.2	Alg10F2	Plot a graph	Plot Points	S	S	App	App	
Cartesian Coordinates	A1.3	Alg10F2	Write Coordinates	Plot Points	S	S	App	App	
Slope of a Line	A1.4	Alg10F6	State Slope	Find the Slope	S	S	App	App	
Midpoint of Line Segment	A1.5	-	State Midpoint	-	S	-	App	-	
Distance Between Two Points	A1.6	Alg10F7	State Distance	Calculate Distance	S	S	App	App	
Slope of Perpendicular Line	A1.7	-	State the Slope	-	S	-	App	-	
Slope of Parallel Lines	A1.8	-	State the Slope	-	S	-	App	-	
Two Variable Linear Equations	A2.1	-	Application	-	S	-	App	-	
Linear Equations (Optional)	A2.2	Alg10F3,4 (Partly)	Graph	Table and Graph	S	S	App	App	
Systems of Linear Equations	A2.3	Alg10G1a Alg11E1a	Locate Intersection	Solve	S	S	App	App	
Derive Linear Equations	A2.4	Alg10F8ab (Partly)	Derive	Determine Equation	S	S	Ana	App	
Crcls, Parab, Elipse, Hyprboles	A3.1	12-II-G	Compare and Identify	Identify	S	S	Comp	Comp	
Circle Equations	A3.2.1	12-II-B 3,5	Standard Form/Sketch	Standard Form/Sketch	S	S	Ana	Ana	
Circle Terminology	-	12-II-B1	-	Define/Illustrate	-	C	-	Know	
Circle Equation	-	12-II-B2	-	Determine Equation	-	S	-	App	
Circle Equation	-	12-II-B4	-	Determine Equation	-	S	-	App	
Locus of a Point	-	12-II-B6	-	Indicate Where	-	S	-	App	
Circle Equation	-	12-II-B7	-	Find equation	-	S	-	App	
Parabola Equations	A3.2.2	12-II-C 3 a, b	Standard Form/Sketch	Standard Form/Sketch	S	S	Ana	Ana	
Parabola Terminology	-	12-II-C1	-	Define/Illustrate	-	C	-	Know	
Parabola Equations	-	12-II-C2	-	Determine Equation	-	S	-	App	
Parabola Equations	-	12-II-C4	-	Determine Equation	-	S	-	App	
Parabola Word Problems	-	12-II-C5	-	Solve	-	S	-	Ana	
Ellipse Equations	A3.2.3	12-II-D 3, 5	Standard Form/Sketch	Standard Form/Sketch	S	S	Ana	Ana	
Ellipse Terminology	-	12-II-D1	-	Define/Illustrate	-	C	-	Know	
Ellipse Equations	-	12-II-D2	-	Determine Equation	-	S	-	App	
Ellipse Equations	-	12-II-D4	-	Determine Equation	-	S	-	App	
Locus of a Point	-	12-II-D6	-	Indicate Where	-	S	-	App	
Ellipse Word Problems	-	12-II-D8	-	Solve	-	S	-	Ana	
Hyperbola Equations	A3.2.4	12-II-E3	Standard Form/Sketch	Standard Form/Sketch	S	S	Ana	Ana	
Hyperbola Terminology	-	12-II-E1	-	Define/Illustrate	-	C	-	Know	
Hyperbola Equations	-	12-II-E2	-	Determine Equation	-	S	-	App	
Hyperbola Equations	-	12-II-E4	-	Determine Equation	-	S	-	App	
Hyperbola Equations	-	12-II-E5	-	Determine Equations	-	S	-	App	
Hyperbola Word Problems	-	12-II-E6	-	Solve	-	S	-	Ana	
Conic Sections (Optional)	A3.3	-	Sketch	-	S	-	Ana	-	
Systems of Equations	A4.1	12-II-F 1a, b	Determine Solutions	Sketch/Identify	-	S	-	App	
Systems of Equations	A4.2	-	Solve Graphically	-	S	-	App	-	
Linear Quadratic Systems	A4.3	12-II-F 2a	Solve Algebraically	Solve Algebraically	S	S	App	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Quadratic Quadratic Systems	A4.4	12-II-F 2b	Solve Algebraically	Solve Algebraically	S	S	App	App	
Linear Quadratic Problems	A5.1	-	Solve/Check	-	S	-	App	-	
Quadratic-Quadratic Problems	A5.2	-	Solve/Check	-	S	-	App	-	
Locus	-	12-II-A1	-	Define/Illustrate	-	C	-	Know	
Locus	-	12-II-A2	-	Sketch/Identify	-	S	-	App	
TRACK B: Scale Drawings									
Scale Drawings of Triangles	B1.1	-	Calculate Dimensions	-	S	-	App	-	
Solving Triangles	B1.2	-	Solve	-	S	-	App	-	
Scalar/Vector Terminology	B2.1	-	Define	-	C	-	Know	-	
Vector Problems	B2.2.1	-	Find Resultant	-	S	-	App	-	
Vector Problems	B2.2.2	-	Calculate Components	-	S	-	App	-	
Metric Scale Drawing Problems	B3.1	-	Solve	-	S	-	App	-	
TRACK C: Trigonometric Ratios in Right Triangles									
Right Triangle Parts	C1.1	12-I-A-1 (Partly)	Define/Label	Define/Illustrate	C	C	Know	Comp	
Pythagoras' Theorem	C1.2	10-F-2	State/Apply	Prove/Apply	S	S	App	App	
Sine, Cosine, Tangent Ratios	C2.1	12-I-A-1	Write Ratios	Define/Illustrate	S	C	App	Comp	
Trigonometric Ratios	C2.2	12-I-A-1	Lst Fnctns/Wrte Ratios	Define/Illustrate	S	C	App	Comp	
Co-fnctns of Complementry Angles	C2.3	12-I-A-1	List Values	Define/Illustrate	S	C	App	Comp	
Trigonometric Ratios	C3.1	12-I-A-1	Write Ratios	Define/Illustrate	C	C	App	Comp	
Trigonometric Tables/Calculators	C3.2.1	Yes/Gen	Find Ratios	-	S	-	App	-	
Trigonometric Tables/Calculators	C3.2.2	Yes/Gen	Find Acute Angle	-	S	-	App	-	
Exact Values of 30°, 45°, 60°	C3.3/ C3.4	12-I-A-10	Derive/Perform	Use	S	S	App	App	
Solve Right Triangles	C4.1.1 - C4.1.3	12-I-E-2	Solve	Solve	S	S	App	App	
Solve Right Triangles	C4.1.4	12-I-E-4	Solve	Solve	S	S	App	App	
Right Triangle Problems	C5.1	12-I-E-2	Solve	Solve	S	S	App	App	
Right Triangle Problems	C5.2	12-I-E-4	Solve	Solve	S	S	App	App	
TRACK D: Aids to Calculations									
Angle Terminology	D1.1	12-I-A-1,3,8,9	Draw/Indicate/Classify	Define/Draw/Use	S	S	Comp	App	
Trigonometric Ratios	D1.2	12-I-A6b	Draw/Evaluate	Determine	S	S	App	App	
Signs on Trig Functions	D1.3	12-I-A 7a, b	Determine	Determine	S	S	App	App	
Trig Functions (Optional)	D1.4	12-I-A-8	Determine	Determine	S	S	App	App	
Radian Measure	D1.5	12-I-A-1	Evaluate	Define/Illustrate	S	S	App	App	
Convert Radians to Degrees	D1.6	12-I-A-2	Convert	Convert	S	S	App	App	
Inverse Trig Function	D2.1	-	Define	-	C	-	Know	-	
Inverse Trig Functions	D2.2	-	Determine the Measure	-	S	-	App	-	
Inverse Trig Functions	D2.3	-	Evaluate in Radian Mode	-	S	-	App	-	
Sine, Cosine, Tangent	D3.1	Yes/Gen	Eval with Calculator	-	S	-	App	-	
Secant, Co-Sec, Co-Tan	D3.2	Yes/Gen	Eval with Calculator	-	S	-	App	-	
Angle Determination	D4.1	-	Determine Angle	-	S	-	App	-	
Angle Determination	D4.2	-	Determine Angle	-	S	-	App	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GEO
Angular Velocity and Arc Length									
Definitions	-	12-I-A-1 (Partly)	-	Define/Illustrate	-	C	-	Comp	
Angular Velocity	-	12-I-A-4	-	Slv Rotation Problms	-	S	-	App	
Arc Length Formula	-	12-I-A-5	-	Apply	-	S	-	App	
Radius Vector	-	12-I-A-6a	-	Determine Length	-	S	-	App	
TRACK E: Oblique Triangles									
Law of Cosines	E1.1	-	State Law	Solve Oblique Tringl	C	S	Know	App	
Pythagorean Theorem	E1.2	-	Show Relationship	Solve Oblique Tringl	S	S	Comp	App	
Oblique Triangle Side	E1.3	-	Apply	Solve Oblique Tringl	S	S	App	App	
Oblique Triangle Angle	E1.4	-	Apply	Solve Oblique Tringl	S	S	App	App	
Table/Calculator Use	E1.5	-	Determine Desired Parts	Solve Oblique Tringl	S	S	App	App	
Law of Sines	E1.6	-	State Law	Solve Oblique Tringl	C	S	Know	App	
Sine Ratio	E1.7	-	Show Relationship	Solve Oblique Tringl	S	S	Comp	App	
Triangle Side Lengths	E1.8	-	Calculate Lengths	Solve Oblique Tringl	S	S	App	App	
Ambiguous Cases	E1.9	12-I-E-4	Determine Possibilities	Solve Triangles	S	S	App	App	
Triangle Parts	E1.10	12-I-E-5	Solve Parts	Solve Word Problems	S	S	App	App	
Triangle Areas	E2.1	12-I-E-6	Calculate Areas	Find Areas	S	S	App	App	
Vector Problems	E3.1	12-I -	Solve Problems	-	S	-	App	-	
Practical Problems	E3.2	12-I-E-5	Solve Problems	Solve Word Problems	S	S	App	App	
Angle/Directions Definitions	-	12-I-E-1	-	Define/Illustrate	-	C	-	Comp	
Identities and Trigonometric Functions									
Identities (consists of seventeen identities)	-	12-I-B-1	-	Prove/Apply	-	S	-	Ana	
Trigonometric Equations	-	12-I-C	-	Solve	-	S	-	App	
Periodic Function Terminology	-	12-I-D-1	-	Define/Illustrate	-	S	-	Comp	
Trigonometric Functions	-	12-I-D-2	-	Analyse	-	S	-	Ana	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
MATHEMATICS 10									
Part A BUSINESS AND CONSUMER MATHEMATICS									
Simple Interest	-	10-A-1	-	Identify Components	-	S	-	Ana	
Credit Plans	-	10-A-2	-	Dscribe/Identfy Diff	-	S	-	Ana	
Credit/Loans	-	10-A-3	-	Advntges/Disadvntage	-	S	-	Comp	
Apparent/True Interest Charges	-	10-A-4	-	Explain Difference	-	S	-	Comp	
True Interest	-	10-A-5	-	Calculate	-	S	-	App	
Part B ALGEBRA									
Exponential Terminology	-	10-B-2	-	Use Correctly	-	S	-	App	
Rules of Exponents	-	10-B-3	-	State and Apply	-	S	-	App	
Zero Exponents	-	10-B-4	-	State/Explain Meanng	-	S	-	Comp	
Negative Exponents/Reciprocals	-	10-B-5	-	Exp Rltnshp,use rule	-	S	-	App	
Scientific Notation	-	10-B-6	-	Express any number	-	S	-	App	
Standard Form	-	10-B-7	-	Estmte & Calcu Answ	-	S	-	App	
Exact/Approx Number Usage	-	10-B-8	-	Distinguish Between	-	S	-	Comp	
Rounding Off	-	10-B-9	-	Approx Computations	-	S	-	App	
Two Positive Numbers	-	10-B-10	-	Comp Use Scietfc Not	-	S	-	App	
Part B RADICALS AND SQUARE ROOT ALGORITHMS									
Perfect Square Numbers	-	10-B-1	-	Identify	-	S	-	App	
Determine Square Roots	-	10-B-2	-	Use Various Methods	-	S	-	App	
Radicals	-	10-B-3	-	Perfm Arith Opertion	-	S	-	App	
Radicals	-	10-B-4	-	Simplify	-	S	-	App	
Part B FUNDAMENTAL OPERATIONS ON POLYNOMIALS (FACTORING AND EQUATION SOLVING)									
Mult Polynomial by Monomial	-	10-B-1	-	Use Distrib Law	-	S	-	App	
Add and Subtract Polynomials	-	10-B-2	-	Use Hori & Vert Mthd	-	S	-	App	
Multiply Two Binomials	-	10-B-3	-	Use Double Dist Law	-	S	-	App	
Monomial	-	10-B-4	-	List Sev. Factrzatn	-	S	-	App	
Factoring Polynomials	-	10-B-5	-	Use Distrib Law	-	S	-	App	
Multiplying Binomials	-	10-B-6	-	Find Special Prod	-	S	-	App	
Factoring Binomials	-	10-B-7	-	Factor Specl Prodct	-	S	-	App	
Given a Variable	-	10-B-8	-	Find Value of Funct	-	S	-	App	
Simple Linear Equations	-	10-B-9	-	Slv Use Axioms of Eq	-	S	-	App	
Quadratic Equations	-	10-B-10	-	Solve by Factoring	-	S	-	App	
Part C FUNCTIONS, RELATIONS AND REPRESENTATION OF DATA: COMMON TYPES OF GRAPHS AND DESCRIPTIVE STATISTICS									
Gathering Data	-	10-C-1	-	Tbulate/Frquency Tbl	-	S	-	App	
Various Graphs	Math5-10 K-3,K-4	10-C-2	Iden/Read/Draw	Rep Frequency Counts	S	S	App	App	
Class, Range, Scale	-	10-C-3	-	Determ Which is Suit	-	S	-	App	
Changing Scale	-	10-C-4	-	Explain Effects	-	S	-	Comp	
Graphical Data	-	10-C-5	-	Interpret	-	S	-	Ana	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Mean/Median/Mode	-	10-C-6	-	Determine	-	S	-	App	
Mean/Median/Mode	Math5-10 K1.2	10-C-6	Calculate	Application	S	S	App	App	
Part C FUNCTIONS, RELATIONS, AND REPRESENTATION OF DATA GRAPHING RELATIONS ON THE CARTESIAN PLANE									•
Coordinate Graphing Terminology	Math5-10 K-5.1	10-C-1	Define	Use Correctly	C	S	Know	Comp	
Given Ordered Pairs	Math5-10 K-5.4	10-C-2	Graph	Plot Points	S	S	App	App	
Function	Math5-10 K-5.6	10-C-3	Graph	Plot	S	S	App	App	
Part C FUNCTIONS, RELATIONS, AND REPRESENTATION OF DATA: ELEMENTARY PROPERTIES OF A LINEAR FUNCTION									•
Linear Equation	-	10 C-1	-	Table and Graph	-	S	-	App	
Table of Data	-	10 C-2	-	Determ Whthr Linear	-	S	-	App	
Linear Equation	-	10 C-3	-	Fnd Intrcepts & Plot	-	S	-	App	
Slope of a Line	-	10 C-4	-	Fnd Use Vari Methods	-	S	-	App	
Positive/Negative Slope	-	10 C-5	-	Differentiate Betwn	-	S	-	App	
Slope/ Y-Intercept	-	10 C-6	-	Determine/Draw Grph	-	S	-	App	
Given Slope and Point	-	10 C-7	-	Determine Graph	-	S	-	App	
Given Slope and Y-Intercept	-	10 C-8	-	Write Equatn of Line	-	S	-	App	
Part C FUNCTIONS, RELATIONS, AND REPRESENTATION OF DATA: GRAPHING NON-LINEAR RELATIONS: THE CONICS									
Function	-	10-C-1	-	Plot Sev Points	-	S	-	App	
Circle, Ellipse, Parabola	-	10-C-2	-	Observe Symmetries	-	C	-	Know	
X and Y Intercepts	-	10-C-3	-	Find, if Any	-	S	-	App	
Part D GEOMETRY: MENSURATION, LINEAR AND AREA SI UNITS									
Units in SI System	Math5-10 E1.1	10-D-1	Define	Identify	C	C	Know	Know	
SI Metric Measurement	Math5-10 E1.2	10-D-2	Define	Identify Prefixes	C	C	Know	Know	
SI Metric Measurement	-	10-D-3	-	Record Correct & Est	-	S	-	App	
Linear SI Units	Math5-10 E3.1,3.3, 3.4	10-D-4	Change to Larger or Smaller Units	Convert Within SI	S	S	App	App	
Linear SI Unts to Imprial Units	-	10-D-5	-	Convert	-	S	-	App	
Imprial Unts to Linear SI Units	-	10-D-6	-	Convert	-	S	-	App	
Various Polygons	-	10-D-7-		Identify/Find Area	-	S	-	App	
Polygons	-	10-D-8	-	Compute Perimeter	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Part D GEOMETRY: EUCLIDEAN CONCEPTS									
Geometric Figures Terminology	Math5-10 I1.1,1.3, 2.2,3.1, 4.1,5.1 (Partly)	10-D-1	Define	Give Definition	C	C	Know	Comp	
Angle Sum Property	-	10-D-2	-	Demonstrate	-	C	-	Comp	
Angle of a Triangle	Math5-10 I 3.4	10-D-3	Calculate and Define	Calculate	S	S	App	App	
Polygon Interior Angular Sum	-	10-D-4	-	Calcul by Triangultn	-	S	-	App	
Angular Meas. of Regular Polygon	-	10-D-5	-	Apply Formula	-	S	-	App	
Ext. Angles of Polygon Meas 360	-	10-D-6	-	Explain Why	-	S	-	Comp	
Congruent/Supplementary Angles	-	10-D-7	-	Identify	-	S	-	Comp	
Inscribed Angles	-	10-D-8	-	Iden as Being Equal	-	S	-	Comp	
Right Triangle (Missing Side)	Math5-10 I3.10	10-D-9	Calcu Using Pythg Theor	Calc use Pythog Thrm	S	S	App	App	
Three Com Reg Dimensional Obj	-	10-D-10	-	Name Them	-	C	-	Know	
Reg Three Dimensional Objects	-	10-D-11	-	List common propert	-	C	-	Know	
Angle/Bisector/Lines/Triangle	-	10-D-12	-	Const Use Vari Mthod	-	S	-	App	
Part E RATIO, PROPORTION, AND VARIATION									
Ratio/Prportion/Direct Varition	Alg 12 Track A	10-E-1	-	Solve Use Vari Mthod	-	S	-	App	
Proportions Word Problems	Alg 12 Track A	10-E-2	-	Solve	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
MATHEMATICS II									
TRACK A: Arithmetic									
Operations (with/without calcu)	A1.1	-	Perform Operations	-	S	-	App	-	
Decimals	A1.2	-	Convert	-	S	-	App	-	
Word Problems	A1.3	Prt Prev Know	Solve	-	S	-	App	-	
Signed Number/Absolute Value	A2.1	-	Define/Solve	-	C	-	Know	-	
Absolute Value	A2.2	-	Find/Write	-	S	-	App	-	
Sum	A2.3	Prev K	Find Sum	-	S	-	App	-	
Difference	A2.4	Prev K	Subtract	-	S	-	App	-	
Product	A2.5	Prev K	Write Correctly	-	S	-	App	-	
Quotient	A2.6	Prev K	Write Correctly	-	S	-	App	-	
Practical Problems	A2.7	Prt Prev Know	Solve	-	S	-	App	-	
Practical Problems	A2.8	Prev K	Solve	-	S	-	App	-	
Practical Problems	A3.1-A3.5	Prev K	Solve/Step by Step	-	S	-	App	-	
TRACK B: Polynomials									
Various Polynomials	B1.1	-	Define/Solve	-	C	-	Know	-	
Algebraic Expressions	B1.2	-	Evaluate	-	S	-	App	-	
Algebraic Expressions	B1.3	-	Simplify	-	S	-	App	-	
Algebraic Polynomials	B1.4	-	Classify	-	S	-	Comp	-	
Polynomials	B1.5	-	Write in Order	-	S	-	Comp	-	
Polynomials	B1.6	-	Add/Subtract	-	S	-	App	-	
Polynomial Multiplication	B1.7.1-B1.7.3	-	Multiply	-	S	-	App	-	
Polynomial Division	B1.8	-	Divide	-	S	-	App	-	
Linear Equations	B1.9	-	Solve	-	S	-	App	-	
Exponent Rules	B2.1.1-B2.1.7 B2.1.10	11-B-1	Solve	State/Expl/Apply	S	S	App	App	
Rational Exponent Rules	B2.1.8 & B2.1.9	11-B-2	Solve	Rewrite as Radical	S	S	App	Comp	
Exponent Rules	B2.2	-	Simplify/Solve	-	S	-	App	-	
Scientific Notation/Decimals	B2.3	-	Define/Write	-	S	-	Comp	-	
Sc Notation/Decimals	B2.4	-	Find Product	-	S	-	App	-	
Sc Notation/Decimals	B2.5	-	Convert	-	S	-	App	-	
Factors of Monomials	B3.1	-	Write	-	S	-	App	-	
Factors of Polynomials	B3.2	-	Write	-	S	-	App	-	
Binomials	B3.3.1	-	Multiply Mentally	-	S	-	App	-	
Trinomials	B3.3.2	11-B-2	Factor	Factor Decomposition	S	S	Ana	App	
Special Products	B3.4	-	Factor	-	S	-	Ana	-	
Factoring Techniques	B3.5	-	Factor/Solve	-	S	-	Ana	-	
Polynomial Word Problems	4.1 to B4.3	-	Solve	-	S	-	Syn	-	
Factoring by Grouping	-	11-B-1	-	Determine	-	-	-	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
TRACK C: Real Numbers									
Real Number Terminology	C1.1	-	Identify/Define	-	C	-	Know	-	
Square Root Operation	C1.2	-	Calculate	-	S	-	App	-	
Irrational Numbers	C1.3	-	Classify	-	C	-	Know	-	
Radicals Terminology	C2.1	-	Define/Matching	-	C	-	Know	-	
Radical Expressions	C2.2	11-B-4	Reduce	Simplify	S	S	App	App	
Operations	C2.3	11-B-3 (Sq R)	Perform	Perform	S	S	App	App	
Rationalize Denominator	-	11-B-5	-	Write	-	S	-	App	
Square Root Approximation	C3.1	-	-						
Without Calculator	C3.1.1	-	Calculate	-	S	-	App	-	
With Calculator	C3.1.2	-	Calculate	-	S	-	App	-	
nth Root Approx (with calcu)	C3.2	-	Calculate	-	S	-	App	-	
Irrational Number Problems	C4.1.1-4.1.3	-	Step by Step solution	-	S	-	Ana	-	
Problem Solution	C4.1.4	-	Estimate	-	S	-	App	-	
Problem Solution	C4.1.5	-	Approx with Calcul	-	S	-	App	-	
TRACK D: Solving Equations									
One Variable Linear Equation	D1.1	-	Replacement/Estimate	-	S	-	App	-	
One Variable Linear Equation	D1.2	-	Solve	-	S	-	App	-	
One Variable in Trms of Another	D1.3	-	Solve	-	S	-	App	-	
Linear Equation Word Problems	D1.4	-	Translate/Solve	-	S	-	App	-	
Quadratic Equations	D2.1	-	Solve	-	S	-	App	-	
"No Solution" Case	D2.2	-	Recognize	-	S	-	Know	-	
Cubic Equations	D2.3	-	Solve	-	S	-	App	-	
Variables to Power of 2 or 3	D2.4	-	Solve	-	S	-	App	-	
Quadratic Equation Word Problems	D2.5	-	Solve	-	S	-	App	-	
Graphing Terminology	D3.1	-	Define/Apply	-	S	-	App	-	
Graphing	D3.2	-	Draw/Write	-	S	-	App	-	
Graphing	D3.3	-	Draw	-	S	-	App	-	
Pairs of Linear Equations	D3.4	11-B-6	Solve Graphically	Rlt intrsctn to Solu	S	S	App	App	
Pairs of Linear Equations	D3.5	11-B-7 (Subst)	Solve	Solve	S	S	App	App	
Pairs of Linear Eq. Wrd Problems	D3.6	11-B-2	Solve	Transfrm and Solve	S	S	App	App	
Polynomial Division	-	11-B-3	-	Deter quotnt & Rmain	-	S	-	App	
Remainder Theorem	-	11-B-4	-	Application	-	S	-	App	
Linear Function	-	11-B-5	-	Slv equat using grph	-	S	-	App	
Simultaneous Linear Equations	-	11-B-7 Trial,Err	-	Use Trial and Error	-	S	-	App	
Quadratic Equations	D4.1	-	Graph	-	S	-	App	-	
Quadratic Equations	D4.2	-	Solve	-	S	-	App	-	
Irrational Roots	D4.3	-	Compute	-	S	-	App	-	
Roots of Quadratic Equations	D4.4	-	Estimate	-	S	-	App	-	
Quadratic Equation Word Problems	D4.5	-	Solve	-	S	-	App	-	
Assorted Word Problems	D5.1 to D5.2.5	-	Solve	-	S	-	App	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Ratio, Proportion, and Variation									*
Direct Variation	Alg 12 2.1.2 2.1.3	11-F-1	Define/Solve Problems	Solve	S	S	App	App	
Data Which Vary Directly	-	11-F-2	-	Find Equat of Relatn	-	S	-	App	
Parallel Propor Div Theorem	Geo 11 D1.2 D1.5	11-F-3	Prove/Apply	State/Apply	A	S	App	App	
Similar Triangles	Geo 11 D1.4	11-F-4	Define	Write Proportions	C	S	Comp	App	
Similar Triangles	Geo 11 D1.6	11-F-5	Prove Theor & Slv Prob	Solve Problems	S	S	App	App	
Mechanical System Problems	-	11-F-6	-	Solve Problems	-	S	-	App	
Direct, Inverse, Prtl Variation	Part in Geo 11	11-F-1	-	Distinguish Between	-	S	-	Comp	
Variations (Symbolic Expression)	Part in Geo 11	11-F-2	-	Transform into	-	S	-	App	
Business and Consumer Mathematics									
Simple and Compound Interest	-	11-A-1	-	Explain Difference	-	C	-	Know	
Compounding Principles	-	11-A-2a	-	Construct Table	-	S	-	App	
Compounding Principles	-	11-A-2b	-	Use formula	-	S	-	App	
Compounding Principles	-	11-A-3	-	Derive Formula	-	S	-	Ana	
Compound Interest Word Problems	-	11-A-4	-	Solve	-	S	-	App	
Functions, Relations and Representation of Data									*
Graph Interpolation	-	11-C-1	-	Be able to	-	S	-	Comp	
Graph Extrapolation	-	11-C-2	-	" " & expl Limitatn	-	S	-	Comp	
Curve of Best Fit	-	11-C-3	-	Determ Graphically	-	S	-	Comp	
Zero and No Slope	-	11-C-1	-	Explain Concept	-	S	-	Comp	
Parallel Line Slopes	12 Trig A1.8	11-C-2	State the Slope	State & Use Reltnshp	S	S	App	App	
Point-Slope Frm of Linear Equat	12 Trig A-2.4	11-C-3	Derive Linear Equation	Write Equation	S	S	App	App	
Given Two Points on a Line	12 Trig A2.4	11-C-4	Derive Linear Equation	Write Equation	S	S	App	App	
Mensuration									*
Circum and Area of Circle	-	11-D-1	-	Determine	-	S	-	App	
Pie	-	11-D-2	-	State Approx Value	-	C	-	Know	
Circum and Area Formu for Circle	-	11-D-3	-	Expl Derivation	-	S	-	Ana	
Prisms and Cylinders	-	11-D-4	-	Determine Volume	-	S	-	App	
Frmul for Vol of Prism,Cylinders	-	11-D-5	-	Explain Derivation	-	S	-	Ana	
Prisms	-	11-D-6	-	Deter Surface Area	-	S	-	App	
SI Area and Volume Units	-	11-D-7	-	Convert to SI units	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Coordinate Geometry									
Line Segments Parallel to Axes	-	11-D-1	-	Determine Length	-	S	-	App	
Length of Line Segment	-	11-D-2	-	Determine	-	S	-	App	
Distance Formula	12 Trig A-1.6	11-D-3	State Distance	State/Apply	S	S	App	App	
Mdpnt of Line Segmnt-Para to Axs	-	11-D-4	-	Determine	-	S	-	App	
Midpoint of Any Line Segment	12 Trig A1.5	11-D-5	State Midpoint	Determine	S	S	App	App	
Parallel Lines and Their Slope	12 Trig A1.8	11-D-6	State the Slope	State Relationship	S	C	App	Comp	
Right Angles									
Trig Ratios-Sine, Cos, Tang only	12 Trig C2.1	11-E-1	Write Ratios	Define/Apply	S	S	Comp	App	
Trig Ratios for 30^0, 45^0, & 60^0	12 Trig C3.3	11-E-2	Derive	Derive	S	S	Comp	Comp	
Trig Ratios from Acute Angle	12 Trig C.3.2.1	11-E-3	Find Ratios	Determine	S	S	App	App	
Acute Angle from Trig Ratio	12 Trig C3.2.2	11-E-4	Find Acute Angles	Determine	S	S	App	App	
Angles of Elevation & Depression	-	11-E-5	-	Identify	-	C	-	Know	
Missing Sdes/Angle of Rt Angl Tri	12 Trig C4.1.1 C4.1.3	11-E-6	Solve	Determine	S	S	App	App	
Fundamental Relationships									
tan A = sine A/cos A	12 Trig C2.1	11-E-1a	Write Ratios	State Relationship	S	C	Comp	Comp	
$\sin^2 A + \cos^2 A = 1$	-	11-E-1b	-	State Relationship	-	C	-	Comp	
Plotting Conics									
Equation of Circle; Centre(0,0)	12 Trig A 3.2.1	11-G-1	Standard Frm/Sketch	State Equation	S	S	Ana	Comp	
Equation of Circle; Centre(h,k)	12 Trig A 3.2.1	11-G-2	Standard Frm/Sketch	State Equation	S	S	Ana	App	
Equat of a Circle in Stndrd Frm	12 Trig A 3.2.1	11-G-3	Standard Frm/Sketch	Graph Circle	S	S	Ana	App	
Equat of the Conics (Stndrd Frm)	12 Trig A 3.2.1	11-G-4	Standard Frm/Sketch	Disting btwn & Name	S	C	Ana	Know	
Equat of the Conics (non stndrd)	12 Trig A 3.1	11-G-5	Compare and Identify	Recognize	S	S	Comp	Comp	
Exponential Relations									
Exponential vs Linear Functions	-	11-G-1	-	List Characteristics	-	S	-	App	
Exponential Relations	-	11-G-2	-	Graph	-	S	-	App	
Exponential Graphs and Tables	-	11-G-3	-	Extrapolate Inform	-	S	-	App	
Table of Exponents	-	11-G-4	-	Use to prform calcul	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
MATHEMATICS 12									
TRACK A: Relations, Functions, Variations									
Relations Terminology	A1.1	-	Define/Apply	-	S	-	App	-	
Direct Variation	A2 (All Parts)	-	Define/Solve Problems	-	S	-	App	-	
Inverse Variation	A3 (All Parts)	-	Define/Solve Problems	-	S	-	App	-	
Joint Variation	A4 (All Parts)	-	Define/Solve Problems	-	S	-	App	-	
Combined Variation	A5 (All Parts)	-	Define/Solve Problems	-	S	-	App	-	
Part C FUNCTIONS, RELATIONS, AND REPRESENTATION OF DATA									
Graphs of form $y = ax^2$	Track B 12AnaGeo	12-C-1	-	Sketch/Analyse	-	S	-	Ana	
Coordinates of Vertex	As Above	12-C-2	-	Locate by Substit	-	S	-	App	
Intercepts of Parabola	As Above	12-C-3	-	Locate Intercepts	-	S	-	App	
Maximum/Minimum Problems	As Above	12-C-4		Graph/Solve	-	S	-	App	
TRACK C: Matrices and Determinants									
Matrices Terminology	C1.1	-	Define/Recog/Apply	-	S	-	App	-	
Addition/Subtraction	C1.2	-	Perform Exercises	-	S	-	App	-	
Scalar/Matrix Multiplication	C1.3	-	Multiply	-	S	-	App	-	
Operations	C1.4.1-4.4	-	Perform	-	S	-	App	-	
Determinant/Minor/Order	C2.1	-	Define	-	C	-	Know	-	
Properties	C2.2	-	State Properties	-	C	-	Know	-	
Determinants	C2.3	-	Application	-	S	-	App	-	
Matrix Inverse	C3.1	-	Define	-	C	-	Know	-	
2 x 2 Matrix	C3.2	-	Calculate Inverse	-	S	-	App	-	
3 x 3 Matrix (Optional)	C3.3	-	Calculate Inverse	-	S	-	App	-	
Matrix Equation	C4.1	-	Define	-	C	-	Know	-	
Matrix Equation	C4.2	-	Solve	-	S	-	App	-	
Coefficnt Matrix/Ordrd Pair,Trpl	C5.1	-	Define	-	C	-	Know	-	
Linear Equations	C5.2	-	Solve	-	S	-	App	-	
TRACK D: Progression, Series, and Binomial Expansions									
Sequence/Progression/Series	D1.1	Inherent	Define/Illustrate	-	C	-	Know	-	
Progressions and Series	D1.2	12 B1 & 12 B2	Identify/Classify	State Exple/Lst Char	C	C	Know	Comp	
Arith Prgrssion (Gen or nth Trm)	D2.1	Inherent	Define	-	C	-	Know	-	
Arithmetic Progression	D2.2	12 B4	Calculate nth Term	Determine nth term	S	S	App	App	
Arithmetic Mean(s)	D2.3	-	Calculate Mean(s)	-	S	-	App	-	
Arithmetic Progression	D2.4	12 B5	Calculate Sum	Determine Sum	S	S	App	App	
Sigma Notation	D2.5	-	Evaluate	-	S	-	App	-	
Sigma Notation (Linear Equatns)	D2.6	-	Solve	-	S	-	App	-	
Arithmetic Progression Problems	D2.7	-	Solve	-	S	-	App	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Geomet Prog (Genral or nth Trm)	D3.1	Inherent	Define	-	C	-	Know	-	
Geometric Progression	D3.2	12 B4	Calculate nth Term	Determine nth term	S	S	App	App	
Geometric Mean(s)	D3.3	-	Calculate Mean(s)	-	S	-	App	-	
Geometric Progression	D3.4	12 B6	Calculate Sum	Determine sum	S	S	App	App	
Sigma Notation (Optional)	D3.5	-	Evaluate	-	S	-	App	-	
Infinite Geometric Progression	D3.6	-	Calculate Sum	-	S	-	App	-	
Geometric Progression Problems	D3.7	-	Solve	-	S	-	App	-	
General Binomial Expansion	D4.1	-	Define	-	C	-	Know	-	
Powers of Binomials	D4.2	-	Expand	-	S	-	App	-	
Natural Exponents	D4.2.1	-	Expand	-	S	-	App	-	
Fractional Exponents	D4.2.2	-	Expand	-	S	-	App	-	
Binomial Expansion	D4.3	-	Find nth Term	-	S	-	App	-	
Approximate Roots (Optional)	D4.4	-	Calculate Approx Root	-	S	-	App	-	
Compound Interest	D4.5	-	Solve Word Problems	-	S	-	App	-	
Part A BUSINESS AND CONSUMER MATHEMATICS: ANNUITIES									
Annuities	-	12 A.1	-	List Examples	-	C	-	Know	
Compound Value of Annuity	-	12 A.2	-	Detrmne with Sequenc	-	S	-	App	
Amount of Annuity	-	12 A.3	-	Calc by list as sequ	-	S	-	App	
Amount of Annuity	-	12 A.4	-	Calc by using formul	-	S	-	App	
Values Beyond Annuity Tables	-	12 A.5	-	Deter-use Expntl Law	-	S	-	App	
Presnt Value of Annu or Investm	-	12 A.6	-	Explain Term	-	S	-	Comp	
Pres Value of an Investment	-	12 A.7	-	Deter by usng formul	-	S	-	App	
Pres Value of an Annuity	-	12 A.8	-	Derive Formula	-	S	-	App	
Pres Value of an Annuity	-	12 A.9	-	Deter with Geom Sequ	-	S	-	App	
Annuities: Ordinry/Due/Deferred	-	12 A.10	-	List Examples	-	S	-	App	
TRACK E: Permutations, Combinations, Probability									
Counting Probl Terminology	E1.1	-	Illustrate	-	C	-	Comp	-	
Number of Elements	E1.2	-	Determine	-	S	-	App	-	
Word Problems (Optional)	E1.3	-	Solve	-	S	-	App	-	
Permutation Terminology	E2.1	-	Define	-	C	-	Know	-	
Linear Permutations	E2.2.1	-	Calculate How Many	-	S	-	App	-	
Linear Permutations	E2.2.2	-	Calculate How Many	-	S	-	App	-	
Circular Permutations	E2.3	-	Calculate How Many	-	S	-	App	-	
Permutation Word Problems	E2.4	-	Solve	-	S	-	App	-	
Combinations Terminology	E3.1	-	Define	-	C	-	Know	-	
Combinations vs Permutations	E3.2	-	Contrast	-	S	-	Comp	-	
Combinations	E3.3	-	Calculate How Many	-	S	-	App	-	
Combinations/Permutations/Probl	E3.4	-	Solve	-	S	-	App	-	
Binomial Expansion	E3.5	-	Define	-	C	-	Know	-	
Combination Notation	E3.6.1	-	Expand Binomials	-	S	-	App	-	
Combination Notation	E3.6.2	-	Find nth term	-	S	-	App	-	
Probability Definitions	E4.1	-	Solve Equations	-	S	-	App	-	
Graphs/Venn Programs	E4.2	-	Illustrate	-	C	-	Comp	-	
Probability Word Problems	E4.3	-	Solve	-	S	-	App	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Part B ALGEBRA: THE QUADRATIC FORMULA									*
Completing the Trinomial	-	12-B-1	-	Factor Trinomials	-	S	-	Ana	
Completing the Trinomial	-	12-B-2	-	Slv Quadratic Equat	-	S	-	App	
Standard Quadratic Formula	-	12-B-3	-	Solve any Quadratic	-	S	-	App	
Part D GEOMETRY: MENSURATION: MASS, CAPACITY, AND SI INTERRELATIONSHIPS									
Cmmon SI Units for Mss, Capcity	-	12-D-1	-	Use Correctly	-	S	-	App	
SI Unts of Mass, Capacity, Vol	-	12-D-2	-	State, apply Interel	-	S	-	App	
Part E TRIGONOMETRY: FUNCTIONS OF ANGLES									
Trig Functions of Gen Angle	11Geom D2.5/12 Tr C2.1	12-E-1	Apply/Write Ratios	Define/Determine	S	S	App	App	
Signs in Each Quadrant	12 Trig D1.3	12 E-2	Determine	Determine	S	S	App	App	
Trig Tables/Reference Angle	12 Trig C3 2.1	12 E-4	Find Ratios	Develop Facility	S	S	App	App	
Basic Reduction Formulae	-	12 E-5	-	State and Use	-	S	-	App	
Part E TRIGONOMETRY: RECIPROCAL TRIGONOMETRIC FUNCTIONS									
Reciprocal Trig Functions	12 Trig C2.2	12 E-1	List funct;wrt ratios	State, Use Definit	S	S	App	App	
Reciprocal Trig Functions	12 Trig C2.2	12 E-2	Write Ratios	Determine Value	S	S	App	App	
Reference Angles	12 Trig D1.1	12 E-3	Write	Xtnd K to Rcprl Fnct	S	S	App	App	
Solving Right Triangles	12 Trig C 4.1 (All prt)	12 E-4	Solve	Use Reciprocal Funct	S	S	App	App	
Part E TRIGONOMETRY: LAW OF SINES, COSINES									
Law of Sines/Cosines	12 Trig E1.1 E1.6	12-E-1	State Law	State & Use	C	S	Know	App	
Part E TRIGONOMETRY: RELATIONSHIPS AMONG THE TRIGONOMETRIC FUNCTIONS									
Trigonometric Functions	-	12-E-1	-	State Basic Relation	-	S	-	App	
Part F OPTIONAL TOPICS: INCOME TAX									
Average Income Tax Form	-	12 F-1	-	Complete	-	S	-	App	
Employer Reporting	-	12 F-2	-	State Responsibilit	-	C	-	Know	
Use of Tax Dollar	-	12 F-3	-	Explain Generally	-	S	-	Comp	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Part F OPTIONAL TOPICS: STOCKS AND BONDS									
Common/Preferred Stocks	-	12-F.1	-	Explain Difference	-	S	-	Comp	
Brokerage Fees	-	12-F.2	-	Calculate	-	S	-	App	
Rate of Return/P/E Ration/Yield	-	12-F.3	-	Compute	-	S	-	App	
Purchasing Bonds	-	12-F.4	-	State Advant & Disad	-	S	-	Comp	
Premium/Discount Bonds	-	12-F-5	-	Identify	-	S	-	Comp	
Good Investments	-	12-F-6	-	State Characteristic	-	C	-	Know	
Part F OPTIONAL TOPICS: HOME OWNERSHIP									
Home Ownership	-	12-F-1	-	Compute Initial Cost	-	S	-	App	
True Cost/Interest Paid	-	12-F-2	-	Calculate	-	S	-	App	
Annual/Monthly Home Costs	-	12-F-3	-	Calculate	-	S	-	App	
Fair Rental Value	-	12-F-4	-	Calculate	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
SCIENCE 5-10									
TRACK A: Introduction to Scienc									*
Each Step of Scientific Method	A1.1	Div III	Match	-	C	-	Know		
	A1.2	Div III	Solve	-	S	-	App		Eval
	A1.3	Div III	Give Reasons	-	S	-	Comp		
Basic Lab Equipment	A1.4	Div III	Laboratory*	-	S	-	App		
Matter	A2.1	Sc9	Define	-	C	-	Know		
Properties Common to all Matter	A2.2	Sc9	Match	-	C	-	Know		Ana
Periodic Table/Only Poss Compon	A2.3	Sc10	Name	-	C	-	Know		
Each Square on per Tab/Element	A2.4	Chem 20	Name	-	C	-	Know		
Element/One of 3 Kinds of Matter	A2.5	Sc10	Define/Give Eg	-	C/S	-	Know/Comp		
Elements as Metal/Non-Metal/Per	A2.6	Sc10	Identify	-	C	-	Know		
Each Element Symbol	A2.7	Sc10	Match	-	C	-	Know		
Atom as Smallest Part of Element	A2.8	Sc10	Define	-	C	-	Know		
3 Parts of Atom/Charge	A2.9	Sc10	Label/Identify	-	C	-	Know		
Atomic No/Per Tab/Information	A2.10	Chem 20	Give Number	-	S	-	Comp		
Atomic Wt/Per Tab/Information	A2.11	Chem 20	Give Number	-	S	-	Comp		
No. of Electrons/1 Atom of Elem	A2.12	Chem 20	Give Number	-	S	-	Comp		
Ions/Effect of Gaining/Losing El	A2.13	Chem 20	Explain/Expl Diff	-	S	-	Comp/Ana		
Compound/2nd Kind of Matter	A2.14	Sc10	Explain Difference	-	S	-	Comp		
Simple Compounds	A2.14.1	Sc10	Categorize	-	C	-	Comp		
Molecule/Smallest Part/Compound	A2.15	Sc10	Explain Difference	-	C	-	Comp		
Compound/Formula/Kind/No of Atom	A2.16	Sc10	Name/Give No & Kind	-	C/S	-	Know/Comp		
Mixture/3rd Kind of Matter	A2.17	Sc10	Define/Name	-	C	-	Know		
Eg. of Mixtures/Not Elem-Comp	A2.18	Sc10	Categorize/Support	-	S	-	Comp		
3 States of Matter/Speeds of Mol	A2.19	Sc10	Describe/Indicate	-	C	-	Comp		
3 Types of Changes in Matter	A2.20	Sc10	Label	-	C	-	Know		
Energy	A3.1	Sc9	Define	-	C	-	Know		
Different Sources of Energy	A3.2	Sc9	State	-	C	-	Know		
Potential & Kinetic Energy	A3.3	Sc9	Identify	-	C	-	Know		
Forms of Energy/Characteristics	A3.4	Sc9	State	-	C	-	Know		
Energy Changes	A3.5	Sc9	State/Trace	-	C	-	Know		
Heat & Temperature	A3.6	Sc10	Define/Give Eg Diff	-	C/S	-	Know/Ana		
Temperature	A3.6.1	Sc10	Meas/Record*	-	S	-	App		
Heat Transfer	A3.7	Sc10	Describe/Give Eg	-	S	-	Comp		
Insulation and Properties	A3.8	Sc10	Give Examples	-	S	-	Comp		
Heat Use	A3.9	Sc10	Give Examples	-	S	-	Comp		
What an Organism Is	A4.1	Sc7	Define	-	C	-	Know		
Charact/Living/Non-Living	A4.2	Sc7	Supply Evidence	-	C	-	Comp		
Factors for Survival of Living	A4.3	Sc7	Describe	-	C	-	Comp		
Cell as Struct & Funct Basis	A4.4	Sc7	Define	-	C	-	Know		
Cell Parts & Purpose	A4.5	Sc7	Label/Explain	-	C	-	Know/Comp		
Pl & Anim Cell/Struct & Funct	A4.6	Sc7	List Differences	-	S	-	Ana		
Role of Chromosomes in Cells	A4.7	Sc7	Describe	-	C	-	Comp		
How Cells Multiply	A4.8	Sc7	Explain	-	C	-	Comp		
Liv Thing/Plant, Anim, Protist	A4.9	Sc7	Classify	-	C	-	Comp		
Multicellular Organism	A4.10	Sc7	Give Examples	-	C	-	Comp		
Cell Specialization/Advantages	A4.11	Sc7	Give Eg/Discuss	-	S	-	Comp		

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED *
TRACK B: The Earth and Beyond									
Theories of Origin of Universe	B1.1	Sc8	Name/Explain	-	C/S	-	Know/Comp	-	
Universe	B1.2	Sc8	Outline	-	C	-	Know	-	
Our Galaxy	B1.3	Elem	Describe	-	S	-	Comp	-	
-	B1.3.1	Elem	Differentiate	-	S	-	Comp	-	
-	B1.3.2	Elem	Illustrate	-	C	-	Know	-	
Shape & Dimensions of Galaxy	B1.3.3	Elem	Illustrate	-	C	-	Know	-	
Galaxy Moves in Universe	B1.3.4	Elem	Illustrate	-	C	-	Know	-	
Solar System in Galaxy	B1.4	Elem	Differentiate/Draw	-	S	-	Know/Comp	-	
Components of Solar System	B1.4.1	Sc8	Match	-	C	-	Know	-	
Movement of Each Compon in Solar	B1.4.2	Sc8	Locate	-	C	-	Know	-	Ana
Sun/Heat & Light/Life on Earth	B1.5	Elem	Identify	-	C	-	Know	-	
Planets & Moon Able to Shine	B1.6	Elem	Discuss	-	C	-	Comp	-	
Rotation & Revol of Solar Bodies	B.17	Elem	Ident/Differentiate	-	C	-	Know/Comp	-	Ana
Day & Night	B1.7.1	Elem	Explain	-	C	-	Comp	-	
Changing Seasons	B1.7.2	Elem	Explain	-	C	-	Comp	-	
Solar & Lunar Eclipse	B1.8	Elem	Differentiate	-	C	-	Comp	-	
Man's Effort to Explore Space	B1.9	Elem	Describe	-	S	-	Comp	-	
Geology	B2.1	Sc8	Define	-	C	-	Know	-	
4 Main Eras/Geological Time	B2.2	Sc8	Name	-	C	-	Know	-	Eval
4 Agents of Change/Earth's Surf	B2.3	Sc8	Identify	-	C	-	Know	-	Eval
2 Opposing Forces/Change Earth's	B2.4	Sc8	Differentiate	-	C	-	Comp	-	Eval
2 Main Destructive Forces	B2.4.1	Sc8	Differentiate	-	S	-	Comp	-	Eval
2 Types of Weathering	B2.4.2	Sc8	Describe	-	S	-	Comp	-	Ana
3 Agents of Erosion/Changes	B2.4.3	Sc8	Describe	-	S	-	Comp	-	Eval
2 Agents Build up Earth's Surf	B2.4.4	Sc8	Name	-	C	-	Know	-	Comp
Human Influences/Environ Change	B2.5	Div III	Explain	-	S	-	Comp	-	Eval
Positive Meas To Protect Environ	B2.6	Div III	List	-	C	-	Know	-	Eval
TRACK C: Disease and Drugs									
Subs in Cig Smoke/Body Effects	D2.1	Sc10.7.3	Name/Explain	Be Aware	S	C	Comp	Know	
Effect of Smoking on Body	D2.2	Sc10.7	Label	Be Aware	C	C	Know	Know	
Steps by Pub & Govt/Stop Smoking	D2.3	-	Describe	-	S	-	Comp	-	
Companies Encourage Smoking	D2.4	-	Illustrate	-	C	-	Know	-	
Why People Smoke	D2.5	Sc10.7	List	Be Aware	S	C	Ana	Know	
Terms	D2.6	Sc10.7.1	Match	Define	C	C	Know	Know	
Drug Addiction	D2.7	Sc10.7	Define	Be Aware	C	C	Know	Know	
Stimulant & Depressant	D2.8	Sc10.7	Describe/Give Eg	Be Aware	S	C	Comp	Know	
Dangers of Street Drugs	D2.9	Sc10.7.4	Describe	Be Aware	S	C	Comp	Know	
Uses & Abuses of Pre/Non--Pre	D2.10	Sc10.7.5	Summarize	Realize	S	C	Syn	Know	
General Signs of Drug Abuser	D2.11	Sc10.7	Describe	Be Aware	S	C	Comp	Know	
Effects of Alcohol	D2.12	Sc10.7	Describe	Be Aware	S	C	Comp	Know	
Body Copes With Toxins in Alco	D2.13	-	Describe	-	S	-	Comp	-	
Prog Stages of Alco Addiction	D2.14	-	Identify	-	C	-	Know	-	
Effects of Alcohol Abuse	D2.15	-	Collect Data	-	S	-	Ana	-	
Danger of Mixing Alco & Drugs	D2.16	-	List	-	C	-	Know	-	
Agencies Dealing with Probs	D2.17	-	Name	-	C	-	Know	-	
Implication of Violation of Act	D2.18	-	Identify	-	C	-	Know	-	
Naturally Occurring Drugs	-	Sc10.7.2	-	Be Aware	-	C	-	Know	
Indiscr use of Antibiot/Reduce	-	Sc10.7.5	-	Realize	-	C	-	Know	
Make or Test Drugs	-	Sc10.7.6	-	Perform Activity	-	C	-	Ana	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
BIOLOGY 11									
TRACK A: The Study of Living Things									*
Define Biology	A1.1	Ch 1	Define	-	C	C	Know		
History	A1.2	Scattered	Discuss	-	C	C	Know	-	
Compare Theories	A1.3	Scattered	Compare	-	C	C	Ana	-	
Microscopes	A1.4	Ch 1	Name	3*	C	C/S	Know	-	
Living/Non-living	A2.1	Ch 2	Distinguish	*	C	C	Comp	-	
Spontaneous Generation	A2.2	Ch 2	Demonstrate	-	C/S	C	App	-	
Characteristics	A2.3	Ch 2	List	-	C	C	Know	-	
Classification	A3.1	Ch 14	Discuss	3*	C	C	Comp	-	
Linnaeus	A3.2	Ch 14	Explain	-	C	C	Know	-	
Limitations	A3.3	Ch 14	Describe	-	C	C	Know	-	
Classification Tables	A3.4	Ch 14 & append	Identify	-	C/S	C/S	App	-	
TRACK B: Ecology									*
Ecology	B1.1	Ch 48	Define	-	C	C	Know		
Terms	B1.2	Ch 48	Define	-	C	C	Know	-	Comp
Intrrelationships & Cntrling Fctors	B1.3	Ch 49	Describe	2*	C	C	Know	-	Comp
Water Cycle	B1.4.1	Ch 48	Discuss	-	C	C	Know	-	Comp
Carbon cycle	B1.4.2	Ch 48	Discuss	-	C	C	Know	-	
Nitrogen Cycle	B1.4.3	Ch 48	Discuss	-	C	C	Know	-	
Habitat	B2.1	Ch 49	Define	-	C	C	Know	-	
Vocabulary (Habitat)	B2.2	Ch 49	Develop	-	C	C	Know	-	Ana
Abiotic Systems	B2.3	Ch 49	Discussion	-	C	C	Know	-	Ana
Food Chains/Ecological Pyramids	B2.4	Ch 49	Construct	-	C/S	C	App	-	Ana
Seasonal Changes	B3.1	Ch 50	Explain	2*	C	C	Comp	-	Ana
Daily Changes	B3.2	Ch 50	Explain	-	C	C	Comp	-	Comp
Succession	B3.3	Ch 50	Describe	-	C	C	Know	-	Comp
Biogeography	B4.1	Ch 51	Define	*	C	C	Know	-	
Barriers to Dispersal	B4.2	Ch 51 V. Brief	Explain	-	C	C	Comp	-	Ana
Climatic Zones and Biomes	B4.3	Ch 51	Identify	-	C	C	Know	-	
Distribution Factors	B4.4	Ch 51 V. Brief	Discuss	-	C	C	Comp	-	Ana
Pollution	B5.1	Ch 53	Give Examples	*	C	C	Know	-	Eval
Conservation	B5.2	Ch 52,53	Describe	-	C	C	Know	-	Eval
TRACK C: The Mystery of Life									
Importance of Chemistry	C1.1	Ch 3	Aware		C	C	Know	-	
States of Matter	C1.1.1	Ch 3	Discuss	-	C	C	Know	-	
Molecular Theory	C1.1.2	Ch 3	Explain	-	C	C	Comp	-	
Physical and Chemical Change	C1.1.2.1	Ch 3	Differentiate	-	C/S	C	Ana	-	
Kinetic and Potential Energy	C1.1.2.2	Ch 3	Describe	-	C	C	Know	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Organic/Inorganic Chemistry	C1.1.3	Ch 3	Distinguish	-	C/S	C	Comp	-	
Carbohydrates, Fats & Proteins	C1.1.4	Ch 3	State	-	C	C	Comp	-	
Chemical Structure	C1.1.4.1	Ch 3	Describe	-	C	C	Know	-	
Cell - the Strcturl Bsis of Life	C1.2	Ch 4	Define	-	C	C	Know	-	Know
Mendel's Laws	C1.3	Ch 9	Describe	-	C	C	Know	-	Eval
Describe Cell Theory	C2.1	Ch 4	List	-	C	C	Know		
Organells	C2.2	Ch 4	Label	-	C	C	Know	-	Know
Animal/Plant Cells	C2.3	Ch 4	Identify	-	C/S	C	Comp	-	
Cell Independence	C2.4	Scattered Ch 15-44	Give Differ Eg	-	C	C	Know/Comp	-	
Cell Environment	C2.5	Ch 5	Define	3*	C	C	Know	-	
Photosynthesis and Respiration	C3.1	Ch 6,7	Define	-	C	C	Know/Comp	-	Comp
Photosynthesis	C3.2	Ch 6	List	2*	C	C	Know	-	Comp
Chlorophyll	C3.3	Ch 6	Describe	-	C	C	Know	-	Comp
ATP	C3.4	Ch 7	Explain	-	C	C	Know	-	
Light and Dark Reactions	C3.5	Ch 6	Explain	-	C/S	C	Know	-	Comp
Cellular Respiration	C3.6	Ch 7	Define	*	C	C	Know	-	
Fermentation	C3.7	Ch 16,19	Describe	-	C	C	Know	-	
Cell Energy	C3.8	Ch 6	Discuss	-	C	C	Comp	-	
Protein Synthesis	C4.1	Ch 7	Explain	-	C	C	Comp	-	Ana
DNA	C4.2	Ch 3,7	Draw/Label	-	C	C	Know	-	Ana
Nucleotids & DNA Rep	C4.3	Ch 10,3	Explain	-	C	C	Comp	-	Ana
Transcription	C4.4	Not in Txt	Describe	-	C	C	Know	-	Ana
Importance of DNA	C4.5	Scattered 3,4,7,10	Discuss	-	C/S	C	Ana	-	
TRACK D: Genetics									
Cell Reproduction	D1.1	Ch 8	Explain	*	C/S	C	Syn	-	
Mitosis	D1.1.1	Ch 8	Demonstrate	-	C	C	Know	-	
Meiosis	D1.1.2	Ch 8	Demonstrate	-	C	C	Know	-	
Compare Mitosis and Meiosis	D1.2	Not compared in text	Compare	-	C	C	Comp	-	
Principles of Heredity	D2.1	Ch 9	Match	2*	C	C	Know	-	
Terms	D2.2	Ch 9-12	Differentiate	-	C/S	C	Ana	-	
The Punnett Square	D2.3	Ch 9	Apply	-	C/S	C	App	-	
Incomplete Dominance	D2.4	Ch 9	Apply	-	C/S	C	App	-	
Sutton's Work	D3.1	Ch 10	List	-	C	C	Know	-	
Gene	D3.2	Ch 10	Define	3*	C	C	Know	-	
Genes/Chromosomes	D3.2.1	Ch 10	Explain	-	C/S	C	Comp	-	
Morgan's Work	D3.3	Ch 10	Explain	-	C/S	C	Comp	-	
Autosomes and Sex Chromosomes	D3.4	Ch 10	Differentiate	-	C/S	C	Ana	-	
Cross/Over	D3.5	Ch 10	Explain	-	C	C	Comp	-	
Mutations	D3.6	Ch 10	Differentiate	-	C/S	C	Ana	-	
Causes of Mutations	D3.6.1	Ch 10	List	-	C	C	Know	-	
Twins	D4.1	Ch 11	Differentiate	*	C/S	C	Know	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Sampling	D4.2	Ch 11 Theory not Stressed	Explain	-	C	C	Know	-	
Gene Pool	D4.3	Ch 11	Give Examples	-	C	C	Know	-	
Multiple Alleles	D4.4	Ch 11	Describe	-	C	C	Comp	-	
Blood Groups	D4.5	Ch 11	List	-	C	C	Know	-	
Universl Donor; Univer Recipient	D4.5.1	Not in Text	Differentiate	-	C/S	C	Ana	-	
Sex Linked; Sex Influenced	D4.6	Ch 11	Differ/List	-	C	C	Know	-	
Non-disjunction	D4.7	Ch 11,10	Define	-	C	C	Know	-	
Trisomy, Monosomy	D4.7.1	Not in Text	Differentiate	-	C	C	Know	-	
Genetic Disorders	D4.8	Ch 11	Explain	-	C	C	Comp	-	
Amniocentesis	D4.9	Not in Text	Explain	-	C	C	Comp	-	
Terms	D5.1	Ch 12	Define	*	C	C	Know	-	
Luther Burbank	D5.2	Ch 12	Describe	-	C	C	Know	-	
TRACK E: Organic Variation Microbiology									
Virus	E1.1	Ch 15	Explain	-	C	C	Ana	-	
Chemical Structure	E1.2	Ch 15 V. Little	Describe	-	C	C	Know	-	
Dependence on Host	E1.3	Ch 15	Explain	-	C/S	C	Comp	-	
Classification	E1.4	Ch 15 V Simple	Classify	-	C	C	Know	-	
Life Cycle	E1.5	Ch 15	Describe	-	C	C	Know	-	
Bacteria Viruses	E1.6	Ch 15	Explain	-	C/S	C	Comp	-	
Viral Diseases	E1.7	Ch 15	List	-	C	C	Know	-	
Virus Mycroplasmas Bacteria	E1.8	Not Strng	Compare	-	C	C	Ana	-	
Pasteur	E2.1	Ch 16	Describe	2*	C	C	Know	-	
Types of Bacteria	E2.2	Ch 16	Name	-	C	C	Know	-	
Structure & Mobility	E2.3	Ch 16	Describe	-	C	C	Know	-	
Conditions for Growth	E2.4	Ch 16	Describe	-	C	C	Know	-	
Heterotroph & Autotroph	E2.5	Ch 16	Define	-	C	C	Know	-	
Bacterial Respiration	E2.6	Ch 16	Describe	-	C	C	Know	-	
Bacterial Reproduction	E2.7	Ch 16	Describe	-	C	C	Know	-	
Pasteurization	E2.8	Ch 16	Explain	-	C	C	Know	-	
Koch	E3.1	Ch 17	Describe	-	C	C	Know	-	
Disease Transmission	E3.2	Ch 17	List	-	C	C	Know	-	Eval
Body Defenses	E3.3	Ch 17	Match	-	C	C	Know	-	
Interferon	E3.4	Not Covered	Explain	-	C	C	Comp	-	Eval
Immunity	E3.5	Ch 17	Describe	-	C	C	Know	-	
Understanding Disease & Control	E3.6	Ch 17	Compare	-	C/S	C	Comp	-	Eval
Immune Therpy;Antibiotic Therpy	E3.7	Not Covered	Discuss	-	C	C	Comp	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Protozoa	E4.1	Ch 18	Define	*	C	C	Know	-	
Amoeba	E4.2	Ch 18	Identify	-	C	C	Know	-	
Euglena	E4.3	Ch 18	Identify	-	C	C	Know	-	
Paramecium	E4.4	Ch 18	Identify	-	C	C	Know	-	
Locomotion	E4.5	Ch 18	Explain	-	C	C	Comp	-	
Reproduction	E4.6	Ch 18	Describe	-	C	C	Know	-	
Pathogenic Protozoa	E4.7	V. Little	List	-	C	C	Know	-	
Economic Protozians	E4.8	V. Little	Match	-	C	C	Know	-	

* The text includes chemical bonds.

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
BIOLOGY 12									
TRACK A: Multicellular Plants									•
Fungi	A 1.1	Ch 19	Identify	3*	C	C	Know	15	
Charact. of Fungi	A 1.2	Ch 19	Identify	-	C	C	Know	-	
Fungi as Saproph or Paras	A 1.3	Ch 19	Identify	-	S	S	Ana	-	
Tru Fungi; Imperfct Fungi	A 1.4	Ch 19	Distinguish	-	C/S	C/S	Ana	-	
Hyphae Mycelium	A 1.5	Ch 19	Describe	-	C	C	Know	-	
Four Classes of Fungi	A 1.6	Ch 19	Identify, Describe	-	C	C	Know	-	
Economic Importance	A 1.7	Ch 19	Describe	-	C	C	Know	-	
Mlds,Blights,Mildews,Mshrm	A 1.8	Ch 19	Recognize	-	C/S	C/S	Know/App	-	
Algae	A 2.1	Ch 20	Identify	3*	C	C	Know	-	
Six Phyla of Algae	A 2.2	Ch 20	Identify	-	C	C	Know	-	
Isogametes,Heterogametes	A 2.3	Ch 20,8	Distinguish	-	C/S	C/S	Comp/App	-	
Reproductive Process	A 2.4	Ch 20	Investigate	-	C/S	C/S	Ana	-	
Desmids,Diatoms,Dinoflages	A 2.5	Ch 20	Differentiate	-	C/S	C/S	Ana	-	
Importance of Algae	A 2.6	Ch 20	Discuss	-	C/S	C/S	Know/App	-	
Three Character of Mosses	A 3.1	Ch 21	Give	2*	C	C	Know	-	
Life Cycle of Moss	A 3.2	Ch 21	Discuss	-	C/S	C/S	Syn	-	
Why Moss Must Gro nr Water	A 3.3	Ch 21	Give	-	C	C	Know	-	
Econ & Ecolog Vlue-Mosses	A 3.4	Ch 21	Discuss	-	C/S	C/S	Syn	-	
Bryophytes & Tracheophytes	A 3.5	Ch 21	Differentiate	-	C	C	Ana	-	
Life Cycle of Ferns	A 3.6	Ch 21	Discuss	-	C/S	C/S	Syn	-	
Club Mosses & Horsetails	A 3.7	Ch 21	Recognize	-	C	C	Know	-	
Three Classes of Pteropsid	A 4.1	Ch 21,22	Describe	-	C	C	Know	-	
Seed Plants and Seeds	A 4.2	Ch 22	Identify	-	C	C	Know	-	
Repro Strct Angiosp,Gymosp	A 4.3	Ch 22	Compare and Contrast	-	C/S	C/S	Eval	-	
Fnct-Veg Organ-Flowr Plant	A 4.4	Ch 22	Name and Describe	-	C	C	Know	-	
Parts of Leaf	A 5.1	Ch 25	Identify	-	C	C	Know	-	
Leaf Tissue	A 5.2	Ch 25	Describe	-	C	C	Know	-	
Water & Food in the Leaf	A 5.3	Ch 25	Explain	-	C/S	C/S	Comp	-	
Respirat & Photosynthesis	A 5.4	Ch 25	Compare	-	C/S	C/S	Eval	-	
Water Loss (Transpiration)	A 5.5	Ch 25	Explain	-	C/S	C/S	Comp	-	
How Stomata Work	A 5.6	Ch 25	Describe	-	C	C	Know	-	
Function of Roots	A 6.1	Ch 23	Describe	*	C	C	Know	-	
Two types of Roots	A 6.2	Ch 23	Describe	-	C	C	Know	-	
Four Regions of a Root	A 6.3	Ch 23	Describe	-	C	C	Know	-	
Primary & Secondary Growth	A 6.4	Ch 23	Differentiate	-	S	S	Ana	-	
Primary Tissues in a Root	A 6.5	Ch 23	Describe	-	C	C	Know	-	
Secondary Tissues in Root	A 6.6	Ch 23	Describe	-	C	C	Know	-	
Primary Tissues of a Stem	A 6.7	Ch 24	Describe	4*	C	C	Know	-	
Secondary Tissues of Stem	A 6.8	Ch 24	Describe	-	C	C	Know	-	
Plants Need Water	A 7.1	-	Describe	-	C	C	Know	-	
Roots Absorb Water	A 7.2	Ch 23	Describe	-	C	C	Know	-	
Roots Lose Water	A 7.3	Ch 23	Explain	-	C/S	C/S	Comp	-	
3 Theor of Water Transport	A 7.4	Ch 23,24 25	Describe	-	C	C	Know	-	
Turgid/vs Wilted	A 7.5	Ch 25	Compare and Contrast	-	C	C	Eval	-	
Photoperiodism	A 7.6	-	Describe	-	C	C	Know	-	
Dormancy	A 7.7	Ch 26	Define	*	C	C	Know	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Tropisms	A 7.8	Ch 23	Define	-	C	C	Know	-	
Nastic & Tropic Responses	A 7.9	Ch 23	Distinguish	-	C/S	C/S	Ana	-	
Natural Plant Propagation	A 8.1	Ch 26	Describe	-	C	C	Know	-	
Artificial Plant Propagtion	A 8.2	Ch 26	Describe	-	C	C	Know	-	App
Purpose of Flowers	A 8.3	Ch 26	Describe	-	C	C	Know	-	
Prts of Flwr;Purp in Repro	A 8.4	Ch 26	Identify	-	C	C	Know	-	
Production of Pollen	A 8.5	Ch 26	Describe	-	C	C	Know	-	
Production of the Egg	A 8.6	Ch 26	Describe	-	C	C	Know	-	
Fertilization	A 8.7	Ch 26	Describe	-	C	C	Know	-	
Fruits and Seeds	A 8.8	Ch 26	Distinguish	-	C/S	C/S	Ana	-	
Seed Germination	A 8.9	Ch 26	Describe	-	C	C	Know	-	
TRACK B: Invertebrates									•
Division of Labor	B 1.1	Ch 27	Describe	3*	C	C	Know	-	Comp
Phylum Porifera	B 1.2	Ch 27	Describe	-	C	C	Know	-	Ana
The Sponge	B 1.3	Ch 27	Describe	-	C	C	Know	-	
Sexual and Asexual Reprod	B 1.4	Ch 27	Describe	-	C	C	Know	-	
Phylum Colenterata	B 1.5	Ch 27	Describe	-	C	C	Know	-	
The Hydra	B 1.6	Ch 27	Describe	-	C	C	Know	-	
Feedng,Reprod in the Hydra	B 1.7	Ch 27	Describe	-	C	C	Know	-	
Other Coelenterates	B 1.8	Ch 27	List	-	C	C	Know	-	
Three Worm Phyla	B 2.1	Ch 28	Compare, Contrast	*	C	C	Eval	-	
Body Systems in Worms	B 2.2	Ch 28	Describe	-	C/S	C/S	Know	-	
Regeneration	B 2.3	Ch 28	Describe	-	C	C	Know	-	
The Mollusks	B 3.1	Ch 29	List	3*	C	C	Know	-	
Animals (Mollusks)	B 3.2	Ch 29	Give Examples	-	C	C	Comp	-	
Body Functions in Mollusks	B 3.3	Ch 29	Describe	-	C	C	Know	-	
The Echinoderms	B 3.4	Ch 29	List	-	C	C	Know	-	
Water Vascular System	B 3.5	Ch 29	Describe	-	C	C	Know	-	
Starfish Obtains Food	B 3.6	Ch 29	Describe	-	C	C	Know	-	
Regeneration in Starfish	B 3.7	Ch 29	Describe	-	C	C	Know	-	
Arthropod Characteristics	B 4.1	Ch 30	List	-	C	C	Know	-	
Arthropods & Annelids	B 4.2	Ch 30	Compare & Contrast	-	C/S	C/S	Eval	-	
Arthropod Classification	B 4.3	Ch 30	Name and Describe	-	C	C	Know	-	
The Crayfish & Body System	B 4.4	Ch 30	Describe	-	C/S	C/S	Know	-	Eval
The Grsshpper and Bdy Syst	B 4.5	Ch 31	Describe	*	C/S	C/S	Know	-	
Chordites	B 5.1	Ch 33	List	-	C	C	Know	-	
Vertebrata	B 5.2	Ch 33	List	-	C	C	Know	-	
Classes of the Vertebrata	B 5.3	Ch 33	Name	-	C	C	Know	-	
Class Cyclostomata	B 6.1	Ch 34	Describe	-	C	C	Know	-	
Class Chrondrichthyes	B 6.2	Ch 34	Describe	-	C	C	Know	-	
Class Osteichthyes	B 6.3	Ch 34	Describe	-	C	C	Know	-	
Perch and Body Systems	B 6.4	Ch 34 & lab	Describe	-	C/S	C/S	Know	-	
Trnstn-Life Frm Water-Land	B 7.1	Ch 35	Explain	2*	S	S	Comp	-	
Amphibians	B 7.2	Ch 35	List	-	C	C	Know	-	
Frog and Body Systems	B 7.3	Ch 35 lab	Describe	-	C	C	Know	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Metamorphosis in the Frog	B 7.4	Ch 35	Explain	-	S	S	Comp	-	
Ancestors of Reptiles	B 8.1	Ch 36	Name and Describe	*	C	C	Know	-	
Evolu Import-Amniote Egg	B 8.2	Ch 36	Explain	-	S	S	Comp	-	
Charact of Reptiles	B 8.3	Ch 36	List	-	C	C	Know	-	
2 Members of Clss Reptilia	B 8.4	Ch 36	Discuss & Describe	-	C/S	C/S	Eval	-	
Evolutnary Origin of Birds	B 8.5	Ch 37	Describe	-	C/S	C/S	Eval	-	
Characteristics of Birds	B 8.6	Ch 37	List	-	C	C	Know	-	
Birds and Body Systems	B 8.7	Ch 37	Describe	-	C	C	Know	-	
Characteristics of Mammals	B 9.1	Ch 38	Discuss	-	C/S	C/S	Ana	-	
Adaption of Mammals	B 9.2	Ch 38	Compare	-	C/S	C/S	Eval	-	
Brain Development	B 9.3	Ch 38	Compare	-	C/S	C/S	Eval	-	
Development of Systems	B 9.4	Ch 38	Trace	-	C/S	C/S	Ana	-	
TRACK C: Human Biology									*
Review Terms	C 1.1	Ch 40	Review, Give	-	C	C	Know	-	
Body Systems in Man	C 1.2	Ch 40	Name	-	C	C	Know	-	
Body Tissues & Functions	C 1.3	Ch 40	List	-	C	C	Know	-	
Struct, Funct-Skeletal Sys	C 1.4	Ch 40	Discuss	-	C	C	Know	-	
Muscles & Function	C 2.1	Ch 40	Identify	-	C	C	Know	-	
Muscles and Movement (opt)	C 2.2	Ch 40	Describe	-	C	C	Know	-	
Factors That Produce Movem	C 2.3	Ch 40	Explain	-	C	C	Comp	-	
Classes of Food	C 3.1	Ch 41	List	-	C	C	Know	-	
Digestive System	C 3.2	Ch 41	Reproduce	-	C	C	Know	-	Ana
Physical & Chemical Digest	C 3.3	Ch 41	Explain	-	C/S	C/S	Comp	-	Ana
Digestive Organs	C 3.4	Ch 41	Discuss	-	C/S	C/S	Ana	-	Ana
Malfunc-Digest Trct,Treatm	C 3.5	Ch 41	Discuss	-	C/S	C/S	App	-	Ana
Circulat Sys;Lymphatic Sys	C 4.1	Ch 42	Identify, Define	-	C	C	Know	-	Ana
Organs of Circulation	C 4.2	Ch 42	Identify, Explain	-	C/S	C/S	Eval	-	Ana
Components of Blood	C 4.3	Ch 42	Name	-	C	C	Know	-	Ana
Types of Circulation	C 4.4	Ch 42	Identify	-	C	C	Know	-	
Lymph Vessels (opt)	C 4.5	Ch 42	Define	-	C	C	Know	-	
Malfunction of Circul Syst	C 4.6	Ch 42	Describe, Discuss	-	C/S	C/S	App	-	
Organs of Excretion	-	Ch 42	List	-	C	C	Know	-	
Urinary System	C 5.2	Ch 42	Define	-	C	C	Know	-	
Blood Purification (opt)	C 5.3	Ch 42	Explain	-	S	S	Comp	-	
Malfunct of Excretory Sys	C 5.4	Ch 42	Discuss	-	C/S	C/S	App	-	
Respiration	C 6.1	Ch 43	Define	1*	C	C	Know	-	
Organs of Respiration	C 6.2	Ch 43	Explain	-	C	C	Know	-	
Mechanics of Breathing	C 6.3	Ch 43	Describe	-	C	C	Comp	-	
Exchange of O_2 & CO_2	C 6.4	Ch 43	Explain	-	C	C	Comp	-	
Respiration at Cell Level	C 6.5	Ch 43	Relate	-	C	C	Know	-	
Malfunct of Circulat Syst	C 6.6	Ch 43	Discuss	-	C/S	C/S	App	-	
Nervous System	C 7.1	Ch 44	Define	-	C	C	Know	-	
Parts of the Nervous Syst	C 7.2	Ch 44	Describe	-	C	C	Know	-	
CNS	C 7.3	Ch 44	Describe	-	C	C	Know	-	
Neuron	C 7.4	Ch 44	Describe	-	C	C	Know	-	
Reflex Arc	C 7.5	Ch 44	Explain	-	C	C	Comp		
Autonomic System	C 7.6	Ch 44	Describe	-	C	C	Know	-	
Endochrine System	C 8.1	Ch 46	Describe	-	C	C	Know	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Hormones	C 8.2	Ch 46	Define	-	C	C	Know	-	Eval
Glands	C 8.3	Ch 46	List	-	C	C	Know	-	Eval
Malfunctions & Results	C 8.4	Ch 46	Discuss	-	C	C	App	-	
Reproductive System	C 9.1	Ch 47	Label	-	C	C	Know	-	Comp
Production of Gametes	C 9.2	Ch 47	Relate	-	C	C	Comp	-	Comp
Semen and Menstrual Cycle	C 9.3	Ch 47	Discuss	-	C	C	Know	-	
Fert-Egg & Early Germ Lyer	C 9.4	Ch 47	Discuss	-	C/S	C/S	Comp	-	
Populn Cntrl & Birth Cntrl	C.9.5	-	Discuss	-	C	C	Know	-	
Body Cntrols	-	Ch 45	-	-	-	C	-	-	
Reproduction & Dev't	-	Ch 48	-	-	-	C	-	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
CHEMISTRY 11									
TRACK A: Orientation to Chemistry in Chem IV									*
Inductive/Deductive Reasoning	A1.1	DimB E2f	Def/Differentiate	-	C	C	Ana	Eva	Ana
	A1.2	DimB E2f	Identify/Use	-	S	S	App	Eva	
Steps in Scientific Method	A1.3	EBC1	State/Explain	Outline	C	C	Know/Comp	Know	
Importance of Scientific Method	A1.4	EBC1	Explain	Explain	C	C	Comp	Comp	Ana
Experiment-Steps, Value	A1.5	Implied	List/Describe/Expl	Explain/Discuss	C	C	Know/Comp	Comp	
Data/Observation	A1.6	EBC1/lab	Collect/Organize	Record/Organ/State*	S	S	Comp/App	Cmp/App	Ana
Theories/Models	-	EBC2	-	Define/Identify/Use*	-	C/S	-	K/Cmp/Ap	
Importance of Communication	(A1.3)	EBC4	Explain	Explain	C	C	Comp	Comp	
Laboratory Equipment	A1.7	Lab Man	Recognize/Expl	Identify/Use	C	C/S	Know/Comp	K/App	Ana
Laboratory Safety Rules	A1.8	Lab Man	Describe/Use	Perform	C	C	Know/App	K/App	App
Metric System/Chemistry	A2.1	Sc9	Identify	Identify	C	C	Know	Know	App
- Base Units	A2.2	Sc9	Identify	Use*	C	C	Know	K/App	App
- Length, Mass, Volume	A2.3	Sc9	Measure/Record*	Use	C	C	Know	K/App	
- Prefixes	A2.4	Sc9	Identify/Define	Use	C	C/S	Know	K/App	
- Conversions	A2.5	Sc9	Convert	Use	S	S	Comp	App	
- Litre = 1000 cm^3	A2.6	Sc9	Define/Convert	Use	C	C/S	Know/Comp	K/App	
- Density	A2.7	Sc9	Define/Solve	Use/Solve*	S	S	App	App	App
- Scientific Notation (Rules)	A2.8	JrSc/Math Phys 20	State	Use/Express	C	C/S	Know	K/App	
- Ordinary to Scien Notatation	A2.9	Phys 20	Convert	Use/Express	S	S	Comp	App	
- Mathematical Operations	A2.10	Phys 20	Perform	Use/Express	S	S	App	App	
- Areas, Volumes	A2.11	Sc 9	Calculate/Solve	Use/Express	S	S	App	App	
Precision/Accuracy/Tolerance	A2.12	EBC3	Define	Define/Disting*Expl*	C	C	Know	K/Cmp/An	
Percent Error	A2.13	EBC3	Define/Calculate	Calculate/Explain*	S	S	App/Know	Cmp/App	
Significant Digits	A2.14	EBC3/Ph20	Define/Express	Use/Express	C/S	C/S	Know/App	K/App	
Uncertainties	-	EbC3	-	Solve*	-	S	-	App	
Chemistry as a Science	A3.1	EBC1	Define	Explain	C	C	Know	K/Cmp	
Matter: Three Properties	A3.2	St1/B4Imp	Define/List	-	C	C	Know	Know	Comp
Three States of Matter	A3.3	StB4abc	Name/Describe	Name/Descr/Comp,Cntr	C	C	Know/Comp	K/Cmp	Comp
Change in State/Heat Energy	A3.4	StB4abc	Identify/Explain	Graph/Descr/Calcu*	C	C/S	Know/Comp	K/C/Ap/An	Comp
Evaporation/Conden/Boil/Freezing	A3.5	StB4abc	Define/Explain	Explain	C	C	Know/Comp	Comp	Comp
Normal State of Matter	A3.6	Implied	Identify	-	C	C	Know/Comp	Comp	
Physical/Chemical Properties	A3.7	Scl0/StA1	Identify (Distinguish)	Identify (Dist)*	C	C	Know/Comp	K/Cmp	App
Elements/Compounds/Mixtures	A3.8	Scl0/SMC1	Define/Identify	Define/Distinguish*	C	C	Know	K/Cmp	Ana
- Elements	A3.9	Scl0/SMC1	Def/Examples/Categor	Define/Distinguish	C	C	Know/Comp	K/Cmp	Ana
- Compounds	A3.10	Scl0/SMC1	Def/Examples/Categor	Define/Distinguish	C	C	Know/Comp	K/Cmp	Ana
- Mixture	A3.11	Scl0/SMC1	Def/Examples/Categor	Define/Distinguish	C	C	Know/Comp	K/Cmp	Ana
Energy	A3.12	CE20 & 30	Define	Explain*	C	C	Know	Comp	
Relation/Matter and Energy	A3.13	CE 30	Identify/State	Explain	C	C	Know	Comp	
Law of Conservation of Mat/Ener	A3.14	-	State	-	C	-	Know	-	
Molar Heats of Fusion/Vaporiza	-	St B4	-	Calculate*	-	S	-	Appl	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Boiling Point/Atmospheric Temp	-	St B4	-	Determine/Explain*	-	C	-	K/Cmp	
Partial Press/Vapour Press/Temp	-	St B5	-	Explain*	-	C	-	K/Cmp	
Intermolecular Attractive Forces	-	St B4	-	Explain/Distinguish	-	C	-	K/Cmp/S	
TRACK B: Study of Matter									
Natural/Man-made Elements	B1.1	SMC1	Identify/Distinguish	Recognize	C	C	Know/Comp	Know	
Atom	B1.2	SMA1	Define	Explain	C	C	Know	K/Cmp	
Symbols of Elements	B1.3	SMC1	Write/Identify	Write/Identify	C	C	Know	Know	
Structure/Subatomic Particles	B1.4	SMA4	Name/Draw/Describe	Draw/Distinguish	C	C	Know/Comp	K/Cmp	
Proper of Subatomic Particles	B1.5	SMA4	State	State/Use/Discuss	C	C	Know	K/App	
Atomic Mass/Number, Isotope	B1.6	SMA4	Define	Define/Use	C	C/S	Know	K/App	
Number of Subatomic Particles	B1.7	SMA4	State/Calculate	State/Calculate	C/S	C/S	Know/App	K/App	
Valence/Electron Structure	B1.8	SMB1d)	Def/Relate/Determine	State/Relate	C/S	C	Know/Comp	K/Cmp	
Dalton/Thompson/Rutherford/Bohr	B1.9	SMA2,5	Describe	Explain	C	C	Know	K/Cmp	
Metals/Nonmetals/Metaloids	B1.10, 1.13	SMB 2,3	Name/Classify/Disting	Recognize	C	C	Know/Comp	Know	
Properties of Metals	B1.11	Ch30,SMA4	State	List/Discuss	C	C	Know	K/Cmp	
Properties of Nonmetals	B1.12	Ch30,SMA4	State	List/Discuss	C	C	Know	K/Cmp	
Mosely and Mendeleyev	B2.1	SMB2	State	State	C	C	Know	Know	
Periodic Law	B2.2	SMB3	State/Explain	Describe	C	C	Know	Comp	
Arrangement of P.T.	B2.3	SMB2, 3	Draw/Explain	Describe	C	C	Know/Comp	Comp	App
First 21 Elements	B2.4	Implied	State/Identify	Describe	C	C	Know	K/Cmp	
Posit of Metals, Nonmet, Metaloi	B2.5	SMB2, 3	Identify/Examples	Locate	C	C	Know/Comp	Know	
Active Metals/Nonmetals	B2.6	SMB2, 3	Locate/Identify	Locate/Identify	C	C	Know	Know	
Family	B2.7	SMB2	Define/Identify/Expl	Describe, Identify*	C	C	Know/Comp	K/Cmp	
Sodi, Calci, Halogen, Noble GasF	B2.8	SMB2	Identify	Locate	C	C	Know	Know	Ana
Series	B2.9	SMB3	Define/Identify/Expl	Locate	C	C	Know/Comp	K/Cmp	
Energy levels/s,p,d,f and P.T.	B2.10	SMB16)	Relate	Relate	C/S	C/S	Ana	Ana	
Ion	B2.11	SMB1c)	Define	Describe/Explain	C	C	Know	K/Cmp	
Ionization Energy/Trends	B2.12.13	SMB1c)	Define/Recognize/Expl	Describe/Explain	C	C	Know/Comp	K/Cmp	
Low vs High I.E.	B2.14	SMB1c)	Recognize/Distinguish	Explain/Relate	C	C	Know/Comp	K/Ana	
Electron Affinity	B2.15	-	Define	-	C	-	Know	-	
Atomic Size/Trends	-	SMB1c)	-	Describe/Explain	-	C	-	Comp	
Nuclear Equations	-	SmB1(a)	-	Complete/Write	-	C/S	-	K/Cmp/App	
Electromagnetic Radiation	-	SMB1(a)	-	Describe	-	C	-	Comp	
c = Wavelength x Frequency	-	SMB1(a)	-	Descr/Relate/Calcu	-	C/S	-	K/App/Ana	
e = H x Wavelength	-	SMB1(a)	-	Descr/Relate/Calcu	-	C/S	-	K/App/Ana	
Quantum Model of Atom	-	SMB1(b)	-	Describe	-	C	-	Comp	
Energy Levels	-	SMB1(b)	-	Describe	-	C	-	Comp	
Energy and Electron Movement	-	SMB1(b)	-	Descr/Calculate	-	C/S	-	Comp/App	
Electron Configurations	-	SMB1(b)	-	Write (Diagrams)	-	C/S	-	K/Cmp/Ana	
Lewis Structures	-	SMB1(b)	-	Draw	-	C/S	-	K/Cmp	
Orbital Structures	-	SMB1(b)	-	Draw	-	C/S	-	K/Cmp	
Transition Elements	-	SMB3	-	Locate/Recognize	-	C	-	Know	
Rare Earths	-	SMB3	-	Locate/Recognize	-	C	-	Know	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Molecule	B3.1,3.2	SMC1	Recognize/Define	Describe	C	C	Know	Comp	
Diatomic Gases	B3.3	SMC1	Define/Name/Write	State/Use	C	C	Know/Comp	K/App	
Ions (Positive and Negative)	B3.4,3.5	SMB1c)	Distinguish/Explain	Explain/Draw	C	C	Know/Comp	K/Cmp	
Covalent and Ionic bonds	B3.6	Ch30 SMA4a)	Name/Distinguish	Distinguish/Predict	C	C	Know/Comp	K/Cmp/Ana	
Polar and Nonpolar	B3.7	as above	State/Describe	Recognize/Predict*	C	C	Know	K/Cmp/Ana	
Radical/Names/Symbols/Ox.No.	B3.8,3.9	Implied	Define/State/Write	Name/Write	C/S	C/S	Know/App	K/App	
Ionic bonds	B3.10	Ch30 SMA4b	Describe/Explain	Describe/Illustrate	C	C	Comp	Comp	
Energy Change in Bond Formation	B3.11	Ch30 CEA1	Describe/Explain	Identify/Explain*	C	C	Know/Comp	K/Comp	
Chemical/Empirical Formulas	B3.12 3.13	SMC1	Define/Disting/Write	Write	C/S	S	KnowCmpApp	App	
Names of Compounds	B3.14 B4.11	SMC1	State/Write	Write	C/S	S	Know/App	App	
Number of Atoms in a Molecule	-	SMC2c)	-	State	-	C	-	Know	
Types of Cmpds (Acids/Base) (Oxides/Salts)	B4.1 4.10	Ch30 CEE	Name/Identify	-	C	-	Know	-	
Acids	B4.2	Ch30 CEE	Define/Identify	-	C	-	Know	-	
- Properties (5)	B4.3	Ch30 CEE	Describe/Distinguish	-	C	-	Know/Comp	-	
- Names/Formulas	B4.4	Ch30 CEE	Write	-	C	-	Know	-	
Bases	B4.5	Ch30 CEE	Define/Identify	-	C	-	Know	-	
- Properties (5)	B4.6	Ch30 CEE	Describe/List	-	C	-	Know	-	
- Names/Formulas	B4.7	Ch30 CEE	Write	-	C	-	Know/Comp	-	
Salt	B4.8	Ch30 CEE	Identify/Examples	-	C	-	Know/Comp	-	
Water (Neither Acidic or Basic)	B4.9	Ch30 CEE	Define/Write	-	C	-	Know	-	
TRACK C: Mathematics and Matter									
Molecular Weight	C1.1	SMC2(c)	Define/Calculate	Define	C/S	C	Know/App	Know	
Avogadro's Number	C1.2	SMC2(a)	Define	Know/Use	C	C/S	Know	K/App	
Mole	C1.3	SMC2	Define	Explain/Use	C	C/S	Know	Cmp/App	
Gram Molecular Weight	C1.4,1.5	SMC2(c)	Define/Calculate	Calculate*	C/S	S	Know/App	App	
Law of Definite Composit/Value	C1.6	SMC2 SMA	State/Explain	Explain*	C	C	Know/Comp	Comp	
Percentage Composition	C1.7	Implied	Calculate	Calculate*	S	S	App	App	
Weight Per Mole/Number of Moles	C1.8	SMC2	Calculate	Calculate	S	S	App	App	
Determine Molecular Formula	C1.9	SMC2	Determine/Calculate	Calculate/Determine*	S	S	App	App	
Atomic vs Molecular Weight	-	SMC2b)c)	-	Differentiate	-	C	-	Comp	
Avogadro's Hypothesis	-	SMC	-	State/Explain	-	C	-	K/Cmp	
Number of Particles>Moles>Volume	-	SMC2	-	Calculate/Solve	-	S	-	App	
Review Compounds/Mixtures	C2.1	SMC1./ScX	Define/Differentiate	Differentiate*	C/S	C/S	Know/Ana	Ana	
Chemical and Physical Change	C2.2	STA1./ScX	Differentiate	Differentiate*	C	C	Ana	Ana	
- Indications of Chem Change	C2.3	C.E.	State/Identify	Outline*	C	C	Know	Know	
Minimum Energy/Maximum Entropy	C2.4	Chem 30 CEC2(a)	Define/Describe	Identify	C	C	Know/Comp	Know	
Reaction/Reactants, Prod/Chem Eq	C2.5,2.6	STA1	Define/Match/Identify	Recognize/Use	C	C	Know	K/App	
Factors in Writing Chem Eq	C2.7	STA1	State	Apply/Use	C	S	Know	App	
Balanced Equations/Types of Eq	C2.8	STA1,2	Write/Classify	Write	C/S	S	Knw/Ap/syn	App/Syn	
Activity Series	C2.9	Chem 30 CEF1	State/Apply	Predict*	C/S	S	Know/Appl	Comp	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Problems (Mass/Mass, M/Vol,V/V)	C2.10	STA3	Solve	Solve*	S	S	App	App	
Kelvin/Celsius Temp Scale	C3.1,3.2	STB2/ScX	Describe/Compare	State/Convert	C	C/S	Know/Comp	Know/App	
Temp and Molecular Movement	C3.3	STB1/ScIX	Describe	Explain*	C	C	Comp	Comp	
Standard Temp	C3.4	STB3	Define/State	State/Use	C	C/S	Know	Know/App	
Kinetic Molec Theory(Temp&State)	C3.5,3.6	STB1/ScIX	Describe/Explain	Explain	C	C	Comp	Comp	
- Expansion	C3.7	Implied Sc IX	Describe/Explain	Explain*	C	C	Know/Comp	Comp	
Charles' Law/Formula	C3.8	STB2.	State/Expl/Write	Calculate/Solve	C	S	Know	Know/App	
- Vol vs Temp	C3.9	STB2	Calculate	And Graph*	S	S	App	App	
Boyle's Law/Formula	C3.10	STB2	State/Explain/Write	Calculate/Solve*	C	S	Know	Know/App	
- Vol vs Press	C3.12	STB2	Calculate	And Graph	S	S	App	App	
Standard Pressure	C3.11	STB3	State	State/Use	C	C/S	Know	Know/App	
Vol vs Temp and Press	C3.13	STB2	Calculate	Calculate/Solve	S	S	App/Ana	App/Ana	
Molar Volume ($0^{o}C/25^{o}C$)	-	STB3	-	State/Calcu/Solve	-	C/S	-	Know/App	
Temp vs Thermal Energy	-	STB1	-	Differentiate	-	C	-	Comp/Ana	
Ideal Gas	-	STB1	-	Describe	-	C	-	Comp	
Ideal Gas Law	-	STB1	-	Calculate/Solve	-	S	-	App	
Gas Press/Barometer/Manometer	-	STB4d)	-	Use/Explain	-	C	-	Know/Comp	
Model of Gas	-	EBC2	-	Explain	-	C	-	Comp/Syn	
Partial Pressures of Gas	-	STB5	-	Explain/Calculate	-	C/S	-	Comp/App	
- Gases Collected Over Water	-	STB5	-	Calculate	-	S	-	App	

EBC - Experimental Basis of Chemistry
SM - Structure of Matter
ST - Stoichiometry
CE - Chemical Energetics

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GRD
CHEMISTRY 12									
TRACK A: Solutions									*
Solution/Solute/Solvent	A1.1	C.E.D	Define	Define	C	C	Know	Know	Eval
Electrolytes/Nonelectrolytes	A1.2	C.E.D2	Define/Examples	Define/Predict	C	C	Know	K/Cmp	
Combinations That Make Solutions	A1.3	Implied	Identify/Examples	Examples*	C	C	Comp	Comp	Comp
Miscible/Immiscible	A1.4	-	Define	-	C	-	Know	-	
Hydrogen Bond/Water	A1.5	S.M.A(e)	List/Describe	Explain	C	C	Know/Comp	Comp	
Dissolve/Recrystallize/Equil	A1.6	C.E.D	Define/Illustrate	Describe/Relate	C	C	Know/Comp	Comp/Ana	
Solubil/Saturated/Unsat/Supersat	A1.7	Implied	Define/Match	Define/Describe	C	C	Know	K/Comp	
Solubility/Press & Temp	A1.8,1.9	C.E.D	Illustrate/Describe	Explain*	C	C	Comp	Comp	Ana
Diluted/Concentrated	A1.10	Implied (C.E.E)	Define/Differentiate	Differentiate	C	C	Know/Comp	Comp	Ana
Molality	A1.11	-	Define/Solve	-	C/S	-	Know/App	-	
Freezing/Boiling Effects	A1.12	Sc. 9	Explain	Explain*	C	C	Comp	Comp	Eval
- Ionic vs Molecular Solutions	A1.13	C.E.D2	State/Compare	Compare	C	C	Know/Comp	Comp	
Equilibrium/Entropy/Enthalpy*	ABE 20 C2.4	C.E.D	Define/Describe	Relate/Discus/Predic (Differentiate)	C	C	Know/Comp	Ana	
Molarity*	ABE30 B1.11	C.E.D1	Define/Solve	Calculate/Define	C/S	C/S	Know/App	K/App	
Soluble/Precipitate/Charts	-	C.E.D3	-	Write/Predict*	-	C/S	-	K/Cmp/App	
Rate of Dissolving	-	C.E.D	-	Describe*	-	C	-	K/Cmp	
TRACK B: Acids/Bases/Salts									*
Industrial Acids/Uses	B1.1	Implied	Name/State	Name/Write	C	C	Know	Know	
- Bronsted's	B1.2	C.E.E2	Define	Define/Compare	C	C	Know	K/Cmp	
- Dissociation in Water	B1.3	C.E.E2	Explain/Rewrite	Explain/Rewrite	C/S	C/S	Know/Comp	K/Cmp	Comp
- Weak/Strong	B1.4	C.E.E1,3	Distinguish/Explain	Distinguish/Rank*	C	C	Comp	Comp	Comp
- Properties	B1.5	C.E.E2	List	List/Compare*	C	C	Know	K/Cmp	
- Binary/Ternary	B1.6	Implied	Name/Write	Name/Write/Compare	C	C	Know	Know	
- Acid Anhydrides	B1.7	C.E.4	Define/Examples	Recognize/Predict*	C	C	Know/Comp	K/Cmp	Comp
Bases - Bronsted's	B1.8	C.E.E2	Define	Define	C	C	Know	Know	
- Properties/vs Acids	B1.9	C.E.E2	List/Compare	Compare*	C	C	Know/Comp	Cmp	
- Basic Anhydrides	B1.10	C.E.4	Define/Examples	Recognize/Predict*	C	C	Know/Comp	K/Cmp	
Molarity	B1.11	C.E.D1	Define/Solve	Define/Solve	C/S	C/S	Know/App	K/App	
$[H^+]\cdot[OH^-] = 1 \times 10^{-14}$/pH	B1.12	C.E.E1	State/Apply/Draw	State/Discuss/Calcu	C/S	C/S	Know/App	K/Cmp/App	
pH of Solutions	B1.13	C.E.E3	Calculate	Calculate*	S	S	App	App	Comp
Titrations/End-Point/Formula	B1.14	C.E.E4	Define/State/Solve	Write/Solve*	C/S	C/S	Know/App	App	
Salt-Producing Reaction	B1.15	C.E.E4	List	Write*	C	S	Know	Comp	
Le Chatelier's Principle	-	C.E.E1	-	Descr/Apply/Relate*	-	C	-	Cmp/App/Syn	
Equilibrium Constants/KA	-	C.E.E3	-	Write/Calcu/Rank*	-	C/S	-	Cmp/App/Ana	
Acid-Base Pairs	-	C.E.E4	-	Write/Predict/Calcu*	-	C/S	-	Comp/App	
TRACK C: Equilibria									*
Reversibility/Equilibria/Dynamic	C1.1	C.E.1	Define	Define/Describe	C	C	Know	Know/Comp	
Le Chatelier's Principle	C1.2	C.E.3	State	State/Predict/Relat*	C	C/S	Know	K/Cmp/App/Ana	
Changes Affecting Equilibria	C1.3	C.E.2(b)	Explain	Explain/Predict*	C	C/S	Know/Comp	Know/Comp/Ana	
Hydrolysis/pH	C1.4	C.E.E	Define/Calculate	Define/Calculate*	C/S	C/S	Know/App	Know/App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Nonreversibility/Equations	C1.5	Implied	Explain/Write	Explain	C/S	C	Know/Comp	Comp	
Entropy/Enthalpy*	ABE20 C2.4	C.E.2	Define/Des	Define/Predict/Relat	C	C/S	Know/Comp	Know/Ana	
Equilibrium Law	-	C.E.3	-	Describe*	-	C	-	Comp	
- Expression	-	C.E.3	-	Write/Calcu/Solve	-	S	-	App	
High Yield/Low Yield	-	C.E.3	-	Predict	-	C	-	Comp	
TRACK D: Electro Chemistry									*
Oxidation/Reduction	D1.1	C.E.F	Define/Distinguish	Define/Identify	C	C	Know/Comp	Know	App
Oxidation Numbers	D1.2	C.E.F	Apply/Determine	Determine	S	S	App	App	
Ox-Red Agents/Strengths	D1.3 1.4	C.E.F	Define/Identify/Disting	Distinguish*	C	C	Know/Comp	Comp	
Balancing	D1.4	C.E.F	Balance	Write/Balance*	S	S	App	App	Comp
Electrochemical Cells/Anod/Catho	D1.6	C.E.F1	Define/Identify/Disting	Define/Identify	C	C	Know/Comp	K/Cmp	
Ox-Red Reaction for Dry Cell	D1.7	C.E.F1	Write	Write	S	S	App	App	
Electrolytic Cell/Ion Migration	D1.8	C.E.F2	Define/Explain	Identify/Describe*	C	C	Know/Comp	K/Cmp	
Electrochemical vs Electrolytic	D1.9	C.E.F	Compare	Distinguish	C	C	Comp/Ana	Comp/Ana	
Ion Discharge	D1.10	Implied	State/Identify	Identify/Calculate	C	C/S	Know	K/App	
Silver Plating Reaction	D1.11	Implied	Write/Explain	Write/Explain*	C/S	C/S	Comp/App	Comp/App	
Measuring Cell Potential/Ox^n	D1.12	C.E.F1	Describe	Write/Calculate	C	C/S	Comp	Comp/App	
Cell Voltage	D1.13	C.E.F1	Predict (Calculate)	Calculate/Predict*	C/S	C/S	App	App	
Stoichiometric Problems	-	C.E.F1	-	Solve	-	S	-	App	
Le Chatelier's Principle	-	C.E.F1	-	Explain/Describe	-	C	-	Comp	
TRACK E: Hydrocarbons									*
Organic vs Inorganic	E1.1	O.C.A1	Examples/Compare	Distinguish	C	C	Know/Comp	K/Cmp	
Hydrocarbons	E1.2	O.C.A1	Define	Define	C	C	Know	Know	
Isomers/Necessity	E1.3	O.C.A1(a)	Define	Define/Draw/Name	C	C/S	Know	K/Ana/Syn	
Alkane/-enes/-ynes/Aromatics /General Formula	E1.4	O.C.A1a) b) c)	Identify/Match/State	Identify/Write/Name*	C	C/S	Know	K/Comp	
Alkanes - Formulas	E1.5	O.C.A1(a)	Name/Write	Name/Draw	C/S	C/S	Know/Comp	Know/Comp	
Alkyl Radicals	E1.6	Implied	Identify/Write	Identify/Write/Use	C/S	C/S	Know/Comp	K/Cmp/App	
Isomers of Hexane	E1.7	O.C.A1(a)	Name/Draw	Name/Draw	C/S	C/S	Know/Comp	Know/Comp	
Alkanes - Subst Rx	E1.8	O.C.A1(a)	Write/Predict	Write/Predict*	C/S	C/S	Know/App	Know/App	
Alkenes - Formulas	E1.9	O.C.A1(b)	Name/Write	Name/Write/Draw	C/S	C/S	Know/Comp	Know/Comp	
- Subst Rx/X_2/H_2	E1.10	-	Write/Predict	Write/Illustrate*	C/S	C/S	Know/App	Know/Comp	
Polymerization	E1.11	-	Define	-	C	-	Know	-	
Alkynes - Acetylene									
- Structural Formula	E1.12	O.C.A1(c)	Identify/Write	Identify/Write	C/S	C/S	Know/Comp	Know/Comp	
- Px with X_2	-	-	Write	-	S	-	Comp/App	-	
Derivatives-Alcohols/Aldehydes									
- Acids/Esters	E1.14	O.C.B.	Identify/Match/State	Write Identi/State*	C	C/S	Know	K/Comp/App	
- Ethers/Ketones	E1.14	O.C.B.	Identify/Match/State	Write/Identi/State	C	C/S	Know	K/Comp/App	
- Amides/Uses	E1.14	O.C.B	Identify/Match/State	Write/Identi/State	C	C/S	Know	K/Comp/App	
Aromatics/Benzene/Derivatives	E1.14	O.C.A2	Identify	Draw/Name*	C	C/S	Know	Know/Comp	
Halogens	-	O.C.A1(a)	-	Draw/Name*	-	C/S	-	Know/Comp	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
These Sections are included in Chem IV but not in ABE at the "30" level.									
Structure of Matter									
The Chemical Bond									
- Energy (ΔH)	-	S.M.A1	-	Explain/Calculate*	-	C/S	-	Comp/App	
- Electrostatic Nature	-	S.M.A2	-	Describe	-	C	-	Know	
Attractive/Repulsive Forces	-	S.M.A2	-	Determine	-	C/S	-	App	
- Molecular Architecture	-	S.M.A2	-						
*s,p and shape	-	S.M.A3	-	Predict(Identifies)	-	C/S	-	Ana	
dipole	ABE20	A.M.A3	State/Describe	Predict/Expl	C	C/S	Know/Comp	Comp/Ana	
- Types of Bonds									
*Covalent/I.E.	B3.6	S.M.A4	Name/Dist/Describe	State/Predict(Iden)	C	C/S	Know/Comp	K/Cmp/Ana	
*Ionic/I.E.	B3.10	S.M.A4	Name/Dist/Describe	State/Predict	C	C/S	know/Comp	K/Cmp/Ana	
*Metallic	-	S.M.A4	-	State/Predict/Discus	-	C/S	-	K/Cmp/Ana	
*Van der Waals	-	S.M.A4	-	State/Predict/Discus	-	C/S	-	K/Cmp/Ana	
*Hydrogen	ABE30 A1.5	S.M.A4	List/Describe	State/Predict/Discus	C	C/S	Know/Comp	K/Cmp/Ana	
*Network	-	S.M.A4	-	State/Predict/Discus	-	C/S	-	K/Cmp/Ana	
- Representation of Bonding	-	-	-						
*Lewis structures	-	S.M.A5	-	Draw	-	C/S	-	Comp/App	
*Structural Formulas	-	S.M.A5	-	Draw	-	C/S	-	Comp/App	
These Sections are included in Chemistry IV but not in ABE at the "30" level.									
Chemical Energetics									
A. Chemical/Nuclear Reactions	-	CEA2a)b)	-	Recognize/Compare	-	C	-	Comp	
	ABE20 B3.11	A3							
Chemical Reactions/Bonds /Heat Content	-	C.E.A1	Describe/Explain	Describe	C	C	Comp	Comp	
Heat of Reaction/In Equa	-	C.E.A2	-	Recog/Calcu/Write*	-	C/S	-	Know/App	
Conserv of Energy/KE/PotE	ABE20 A3.12 3.14	C.E.A2a)	Define	Describe/Explain	C	C	Know	Comp	
Ener Changes/ΔT/Molec Lvl	-	C.E.A3	-	Outline/Describe	-	C	-	Know/Comp	
Potential Energy in Molec	-	C.E.A3	-	Describe	-	C	-	Comp	
Phase Change(Molec Motion)	ABE20 A3.4	C.E.A3	Identify/Explain	Describe/Compare*	C	C	Know/Comp	Comp	
Ener in Nucleus/Chem/Phase	-	C.E.A3	-	Descr/Compare/Recogn	-	C	-	Know/Comp	
Nuclear Equations	-	C.E.A3	-	Write/Complete	-	C/S	-	K/Cmp/App	
B. Rates of Reaction	-	C.E.B1	-	Differentiate/Predic	-	C/S	-	Cmp/Ana *	
Factors Influencing Rate	-	C.E.B1	-	Descr/Explain/Discus	-	C	-	Comp	
- Collision Theory	-	C.E.B1	-	Descr/Explain/Discus	-	C	-	Comp	
a) Nature of Reactants	-	C.E.B1	-	Descr/Explain/Discus	-	C	-	Comp	
b) Reaction Mechanism	-	C.E.B1	-	Descr/Explain/Discus	-	C	-	Comp	
c) Concentration	-	C.E.B1	-	Descr/Expl/Disc/Grph	-	C/S	-	Comp/App	
d) Temp (KE distribution)	-	C.E.B1	-	Descr/Expl/Disc/Grph	-	C/S	-	Comp/App	
e) Catalysts	-	C.E.B1	-	Descr/Expl/Disc/Grph	-	C	-	Comp	
f) Potential En. Curves	-	C.E.B1	-	Desc/Exp/Dis/Grp/Dr	-	C/S	-	Comp/App	
Heat of Reaction	-	C.E.B1	-	Deduce/Relate/Recog	-	C/S	-	K/Cmp/Ana	

SM - Structure of Matter OC - Organic Chemistry CE - Chemical Energetics

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
PHYSICS II									
TRACK A: Mathematics of Physics									
Major Topics Physicist Studies	-	20.1	-	Identify	-	C	-	Know	
Process of Acquiring Knowledge	-	20.2	-	Illust/Examples	-	C	-	Know	
Fund Quantities	A1.1	20.3A	State/Identify	Recall	C	C	Know	Know	Comp
How Units were Selected	-	20.3B	-	Recall	-	C	-	Know	
Fundamental SI Units & Symbols	A1.2	20.4	State	Recall	C	C	Know	Know	
Metric Prefixes & Symbols	A1.3	SC9	List/Give	-	C	-	Know	-	
Meas Units as Algebraic Symbol	A1.4	Implied	Solve	Solve	S	S	Comp	Comp	
Origin & Advant of Metric Meas	-	20.5A,B	-	Recall/Recog/Conv	-	C/S	-	Comp	
Calculate with Metric System	A1.5	20.5C	Convert	Convert	S	S	Comp	Comp	
No. in Sc Notation & Vice Versa	A1.6	20.6A	Express/Write	Express	C	C	Comp	Comp	
Math Operat on Sc Notat Numbers	A1.7	20.7A	Perform Operations	Perform Operations	S	S	Comp	Comp	
Using Order of Magnitude	-	20.8	-	Estimate/Using	-	S	-	Comp	
Sig Digits, Products & Quot	A1.8	20.6B, 7B	Express Operations	Express/Perform	S	S	Comp	Comp	
Lab Meas, Data Pres & Prob Solv	-	20.9	-	Transfer	-	S	-	App	
Dir & Inv Propor & Power Laws	-	20.10	-	Define/Identify	-	C	-	Know	
Data Table, Graph & Equations	-	20.11	-	Meas/Draw/Inter*	-	S	-	App/Ana	
TRACK B: Fluids at Rest									
Density is Ratio of Mass & Vol	B1.1	S9.1.3	Define/Solve	Define/Calculate	C/S	C/S	App	App	
Density Units	B1.2	S9.1.3	State/Show/Conv	State	C/S	C	Comp	know	
Specific Gravity	B1.3	-	Define/Solve	-	C/S	-	Know	-	
Press as Ratio of Force & Area	B1.4A	S9	Define	Define	C	C	Know	Know	
Press as Depth Times Density	B1.4B	-	Define	-	C	-	Know	-	
Pascal's Principle	B1.5	S9.2.2	Identify/Apply	Realize	C/S	C	App	Know	
Force, Area & Pressure	B1.6	-	Solve	-	S	-	App	-	
Buoyant Force	B1.7A	S9.1.3	Define	Use/Determine	C	S	Know	App	Eval
Buoy force, Wt in Air & Fluid	B1.7B	-	Solve	-	S	-	App	-	Eval
Archim Pr & Law of Flotation	B1.8	S9.1.3	State	Use/Determine	C	S	Know	App	Eval
TRACK C: Heat									*
Kinetic Molecular Theory	C1.1	S10.3	Explain	Recog/Perform	C	C/S	Comp	App	
Heat and Temperature	C1.2	S10.3.1	Define/Give Eg.	Review	C	C	Know	Comp	Comp
States of Matter & Molec Motion	C1.3	S9.1.4	Explain/State	Recog/Perform	C	C/S	Comp	App	Comp
Thermal Expansion of Matter	C1.4A	Elem	Explain	Define	C	C	Know	Know	
Therm Expansion-Water Exception	C1.4B	Elem	Explain	Explain	C	C	Comp	Comp	
Calorie	C1.5	S10.3	Define/Show Equiv	Know	C/S	C	App	Know	
Specific Heat	C1.6	S10.3	Define/Show	Use	C	C/S	Know	App	
Heat = SP Heat*Mass*Temp Diff	C1.7	S10.3.2	Solve	Solve	C/S	C/S	App	App	Comp
Lat Heat of Fusion & Vaporiz	C1.8	S10.3.2	Define	Solve	C	C/S	Know	App	
Heat Lost/Gained-Temp/State	C1.9	S10.3.2	Calc/Solve	Calc/Solve	S	S	App	App	Comp
Law of Heat Exchange	C1.10	S10.3.2	Define	Define	C	C	Know	Know	
Heat Exchange Problems	C1.11	S10.3.2	Solve	Solve	S	S	App	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
TRACK D: Wave Motion									*
Wave Motion as Transf of Energy	D1.1	Implied	Identify/Define	Identify*	C	C	Know	Know	
Transv, Longitud & Torsional	D1.2	Implied	Listing/Explain	Explain	C	C	Comp	Comp	
Wave Parameters	D1.3	20.31	Define/Fill Blank	Identify/Define	C	C	Know	Know	
Wave Equation	D1.4	20.33A	Derive/Answer	State	S	C	App	Know	
Reflection of Water Waves	D1.5	20.32	Describe*	Describe 4*	C	C	Know	Know	
Prop of Barriers & Diff Wave	D1.6	20.32	Examine/Describe*	Describe	C/S	C	Ana	Know	
Water Wave Refract/Note Param	D1.7	20.32	Describe/Draw*	Describe	C	C	Ana	Know	
Interfer of One-Dimens Medium	D1.8	20.32	Study/Determine*	Describe*	S	C	Ana	Know	
Interfer in Two-Dimens Medium	D1.9	20.32	Examine/Describe*	Describe	C/S	C	Ana	Know	
Wave Eqn for Interference	-	20.33	-	Stat/Use/Solv 2*	-	C/S	-	App	
TRACK E: The Nature of Light									*
Light Production/Incand/Lumin	E1.1	20.12A	Describe/Define	Identify	C	C	Know	Know	
Light Transmission	-	20.12B	-	Identify 2*	-	C	-	Know	
Visible Spectrum & Color of Obj	E1.2	Implied	Describe/Explain	Describe/Explain	C	C	Comp	Comp	
Infra/Ultra-Sourc/Detect/Applic	E1.3	-	Fill Chart		C	-	Know	-	
Inverse Sq Law/Light Intensity	E1.4	20.15	State/Solve	Apply/Prob Solve	C/S	C/S	App	App	
Velocity of Light Measuring	E1.5	20.16A 20.30	Compare/Identify	Compare	C/S	C/S	Eval	Eval	
Distance-Rate-Time Problems	-	20.16B	-	Solve	-	S	-	App	
Particle/Wave Theories of Light	E1.6	20.28	Identify/Define	Summarize 3*	C	C/S	Know	Synth	
Special Nature of Scient Model	-	20.27	-	Identify	-	C	-	Know	
Status of Particle Model	-	20.29	-	Assess	-	C/S	-	Eval	
Wavelength/Young's Method	-	20.34	-	Use/Measure 4*	-	S	-	App	
Young's Method Formula	-	20.35	-	Derive	-	S	-	Comp	
Sign Young Exp on Nat of Light	-	20.36	-	Appraise	-	S	-	Eval	
Status of Wave Model	-	20.37	-	Review	-	C/S	-	Eval	
Properties of Light	E1.7	20.13	Explain/Answer	Differentiate	C	C/S	Know	Comp	
Light Phenomena	-	20.14	-	Classify/Examples	-	C/S	-	Comp	
TRACK F: Reflection of Light									*
Law of Reflection	F1.1	20.17	Define/Draw	State*	C	C	Know	Know	
Specular and Diffuse Reflection	F1.2	Implied	Dist/Difference	Distinguish	C	C	Comp	Comp	
Image/Plane Mirror/Geom & Param	F1.3	20.18A	Locate*	Draw*	C/S	C/S	Comp	Comp	
Mirror Types and Parameters	F1.4	Implied	Define	Define	C	C	Know	Know	
Reflection by Curved Mirrors	F1.5	20.18	Describe/Illustrate	Draw*	S	S	App	App	
Ray Diagrams and Images-Mirrors	F1.6	20.18	Use/Determine	Draw	S	S	App	App	
Mirror Equations	F1.7	20.19	Solve	Derive/Solve	S	S	App	App	
Mirrors, Telescopes, Reflectors	-	20.20	-	Apply	-	S	-	App	
TRACK G: Refraction of Light									*
Angle of Refraction	G1.1	20.22	Define/Draw	Draw	C/S	S	App	App	
Laws of Refraction	G1.2	20.21	Label	State 4*	C/S	C	Comp	Know	App
Refraction and Light Velocity	G1.3	Implied	Explain/Decide	Explain	C	C	Comp	Comp	
Snell's Law	G1.4	20.23A,B	Solve	Formulate/Solve	S	S	App	Ana/App	
Critical Angle	G1.5	20.23C	Define/Solve	Solve	S	S	App	App	
Total Internal Reflection	G1.6	20.23C	Explain/Illust	Solve	C	S	Comp	App	
Lens Types and Parameters	G1.7	Implied	Define/Match	Define	C	C	Know	Know	App

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Refraction by Lenses	G1.8	20.24	Describe/Label	Draw	C	S	Know	App	App
Ray Diagrams/Images	G1.9	20.24	Use/Determine	Draw	S	S	App	App	App
Image Size, Location & Magnif	G1.10	20.25A	Solve	Derive/Solve	S	S	App	App	
Lensmaker's Formula	-	20.25B	-	Solve	-	S	-	App	
Image Form in Optical Devices	G1.11	20.26	Describe/Write	Apply	S	S	Synth	App	
TRACK H: Sound									*
Longitudinal Wave Motion	H1.1	20.38	Define/Fill	Identify/Def 3*	C	C	Know	Know	
Longitudinal Wave Interaction	-	20.39A-C	-	Describe	-	C	-	Know	
Sound Wave Properties	H1.2	-	Define/Expl/Match	-	C	-	Comp	-	
Doppler Effect	H1.2.4	20.39D	Define/Expl/Match	Describe	C	C	Comp	Know	
Var of Speed With Temperature	H1.3	-	Descr/Calc/Solve	-	C/S	-	App	-	
Wave Equation & Sound	H1.4	-	Apply/Solve	-	S	-	App	-	
Sound Velocity Problems	H1.5	Implied	Solve	Solve	S	S	App	App	
Modes of Vibrating String	H1.6	Implied	Identify/Describe	Identify/Describe	C	C	Know	Know	
String Equation	H1.7	-	Solve	-	S	-	App	-	
Conditions Governing Resonance	-	20.40	-	State/Solve*	-	C/S	-	App	
Principles of Sound	-	20.41	-	Apply	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
PHYSICS 12									
TRACK A: Kinematics									*
Position on Line/Arbit Origin	-	30.1	-	Specify	-	C	-	Know	
Motion/Motion is Relative	A1.1	Implied	Define/Expl/State	Explain	C	C	Know	Know	
Vector and Scalar Quantities	A1.2	Implied	Define/Fill blank	Define	C	C	Know	Know	
Quant/Vector or Scalar?	Implied	30.6	Example	Classify	C	C	Know	Know	
Vector Quantities	-	30.7	-	Represent	-	C/S	-	Comp	
Math Oper on Vect & Components	-	20.8	-	Perf Operations	-	S	-	Comp	
Mult & Div Vectors by Scalars	-	20.9	-	Mult/Divide	-	S	-	Comp	
Kinematic Parameters	A1.3	30.2	Distinguish/Match	Distinguish	C	C	Comp	Comp	
Displac/Vel/Accel/Time Graph	A1.4	30.3	Describe	Interpret	C	C/S	Know	Comp	
Significance of Slope & Area	A1.5	30.4A,B	Recognize/Solve	Recognize	C/S	C	App	Comp	
Limit Notation	-	30.4C	-	Recognize	-	C	-	Comp	
Free Fall as Accel Motion	A1.6	30.17	Recognize/Solve	Recog/Solve 2*	C/S	C/S	App	App	
Deriv of Unif Accel Motion Eqns	-	30.5A	-	Follow/State*	-	C	-	Know	
Uniform Accel Motion Equations	A1.7	30.5B	Solve	Utilize/Prob Solv	S	S	App	App	
Accel Change of Speed & Direct	-	30.10		Recognize	-	C	-	Comp	
TRACK B: Dynamics									
Kinematics and Dynamics	B1.1	30.11	Disting/Answer	Distinguish	C	C	Comp	Comp	
Inert, Force, Newt's 1st Law	B1.2	30.13	Def/State/Perf*	Inter/Solve 2*	C/S	C/S	Comp	App	
Arist & Galileo-Force & Motion	B1.3	30.12	Compare/Identify	Compare/Contrast	C/S	C/S	Comp	Eval	
Newt's 2nd Law	B1.4	30.13	Deriv/Define/Solv	Interp/Solve*	C/S	C/S	App	App	App
Newt's 3rd Law	B1.5	30.13	State/Give Eg.	Interp/Solve*	C	C/S	Know	App	Ana
Force, a Vector-Math Operat	B1.6	30.14	Recognize/Solve	Define/Recognize	C/S	C	App	Comp	Ana
Mass vs Weight-Measur Methods	B1.7	30.15	Distinguish/Use	Explain/Describe	C/S	C	App	Comp	
Earth's Accel Invariant	B1.8	30.18	Explain/Solve	Explain 3*	C/S	C	App	Comp	
Grav Field/Field Strength	-	30.16	-	Interp/Describ 4*	-	C/S	-	Comp	
Indep of Hor & Vert Comp	B1.9	30.19	Recognize/Solve	Recognize*	C/S	C	App	Comp	
Accel-Change Speed & Direct	-	30.20	-	Recall	-	C	-	Know	
Centripetal Force and Accel	B1.10	30.21	Define/Fill Blank	Illustrate*	C	C	Know	Know	
TRACK C: Universal Gravitation									
Solar Syst Concept/Astronomers	C1.1	30.23	Recognize/Outline	Compare/Contrast	C/S	C/S	Ana	Eval	
Kepler's Laws	C1.2	30.24	State/Answer	State/Validate 2*	C	C/S	Know	Synth	
Newton's Law of Universal Grav	C1.3	30.25	State/Solve	Follow Synthesis	C/S	C	App	Know	App
		-	30.27 -	Solve	-	S	-	App	
Cavendish Meth of Obtaining G	-	30.26	-	Describe	-	C	-	Know	
TRACK D: Impulse and Momentum									
Impulse/Momentum-Newt's 2nd Law	D1.1	30.28	Def/Recog/Fill/Expl	Define/Recognize	C	C	Comp	Know	
Law of Conservation of Momentum	D1.2	30.29	State/Fill/Solve	Infer 7*	C/S	C/S	App	Ana	
Act-React re Conserv of Moment	D1.3	30.30,31	State/Describe	Recog/Solve*	C	C/S	Know	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
TRACK E: Work, Energy, Power									
Work, Energy, Power & Units	E1.1	30.32,33	Derive/Solve	Different/Define	C/S	C/S	App	Ana	App
Expression for K.E.	E1.2	30.34	Derive/Solve	Derive/Solve 2*	C/S	C/S	App	App	App
Expression for Pot Energy	E1.3	30.35	Derive/Solve	Derive	C/S	C	App	Know	App
Express/Grav P.E. Near Earth	-	30.36	-	Derive	-	C	-	Know	
K.E., P.E., Work & Power	E1.4	30.37	Solve	Solve 2*	S	S	App	App	App
TRACK F: Electrostatics									*
Two kinds of Electric Charges	F1.1	30.38	Identify/write*	Perform*	C/S	S	Synth	Ana	
Coulomb	F1.2	30.41	Define/short answ	Define	C	C	Know	Know	
Effects of Electric Field	F1.3	33.42	Describe/draw	Describe/Demo 5*	C	C	Know	Know	
Coulomb's Law	F1.4	30.40	State/fill blanks	Validate Solve*	C	C/S	Know	App	
Conductors and Insulators	F1.5	89	Different/give eg	-	C	-	Ana	-	Eval
Charging by Contact & Induction	F1.6	30.39	Describe	Describe/Demo 3*	C	C	Know	Know	
Conduct Shape & Charge Distrib	F1.7	-	Explain	-	C	-	Comp	-	
TRACK G: Current Electricity									*
Common Sources of Curr Elect	G1.1	-	List/Match	-	C	-	Know	-	Eval
Simple Circuit-Components	Implied	30.45	-	Constr/Name/Descr*	-	C	-	Know	Eval
Electrical Potential-Volt	G1.2	30.43	Define/Fill Blanks	Define/Interpret	C	C/S	Know	Comp	
Current-Ampere	G1.3A	30.46	Define/Identify	Define	C	C	Know	Know	Ana
D.C. and A.C.	G1.3B	-	Define/Identify	-	C	-	Know	-	
Ohm's Law-Ohm	G1.4	30.47	State/Solve	Infer/Define/Use*	C/S	C/S	App	Ana	Ana
Standard Elect Symbols	G1.5	-	Identify/State	-	C	-	Know	-	App
Charact of Parallel & Series	G1.6	30.48A	Describe/Identify	Assemble*	C	C	Know	Know	Ana
Equivalent Circ Parameters	G1.7	30.48B	Solve	Compute*	S	S	App	App	Ana
Energy used in Circuit	G1.8	-	Define/Solve	-	C/S	-	App	-	
Electrical Power	G1.9A	30.4	Define	Show	C	C	Comp	Comp	Ana
Electrical and Mechan Power	G1.9B	30.50	Solve	Compare/Solve	S	C/S	App	App	
Kilowatt Hour - Cost	G1.10	Defne/Cal	-	-	C/S	-	App	-	
Effects of Grav & Elect Fields	-	30.44	-	Compare/Contrast	-	C/S	-	Eval	
TRACK H: Magnetism and Electromagnetism									*
Theory of Magnetism	H1.1	30.52	Describe	Describe	C	C	Know	Know	
Magnetic Pole/Law of Magnetism	H1.2	-	Define/State/Fill	-	C	-	Know	-	
Charact of Mag Field/Permeabil	H1.3	30.51	Describe/Explain	Describe/Demo 5*	C	C/S	Comp	Comp	
Induced Magnetism	H1.4	-	Desc/Fill Blank	*	C	-	Know	-	
Magnet Effect of Conductor	H1.5A	30.53A	Describe	Demonstrate	C	S	Know	Comp	
Conductor Moving in Elect Field	H1.5B	Implied	Describe		C	-	Know	-	
Electromag & Factors of Streng	H1.6	Implied	Describe/Identify	*	C	-	Know	-	
Induced Curr/Lenz's Law/Generat	H1.7	30.53B	Identify/Diagram	Demonstrate 4*	C	C/S	Know	Comp	
Grav/elect/Mag Field	-	30.54	-	Assess/Compare	-	C/S	-	Eval	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
SOCIAL STUDIES									
TRACK A: Canadian Government									
Meaning, Functions, Origins of Canadian Government									
Concept Government	A1.0	12III-B.1	Define/Explain	Inquiry Report/Exam	S	S	Comp	App	
Tasks of Government	A1.1	12III-B.1	List/Explain	Inquiry Report/Exam	S	S	Comp	Ana	
Levels of Government	A.2	III-B.1 (partly)	List	Inquiry Report	C	S	Know	App	
Canada as a Sovereign State	A1.3	12III-B.1	Explain	Analysis	S	S	Comp	Ana	
Nme Colnies in Confedration 1867	A1.4	(Implied)	List	-	C	-	Know	-	
Nme Provinces Post 1867	A1.5	(Implied)	List	-	C	-	Know	-	
Confederation:Historcl Overview	A1.6	(Implied)	Define/Discuss	-	S	-	Comp	-	
Pre-Confederation Concerns	A1.6.1	(Implied)	Identify/Chart	-	S	-	App	-	
Model of Canadian Government	A1.6.2	III-B.1 (Partly)	Identify/Reproduce	Inquiry Report	C	-	App	Ana	
Signif of BNA Act + Constitution	A1.7	12III-B.1	Define/Distinguish	Ana	S	S	Comp	Ana	Comp
Current Government Model	A1.8	12III-B.1	Define Terms	Ana	C	S	Know	Ana	
POLITICAL GEOGRAPHY									
Political Geography of Canada	A2.0	12II-A.1	Locate/Name	Place	C	C	Know	Know	
Population Distribution	A2.1	12II-A.1	Identify	Identify	C	C	Know	Know	
Regional Differ & Politi Decisns	A2.2	12II-A.1 A.3	Name/Locate/Iden/Expl	Examine/Question	S	S	Ana	App	
Democracy in Canada	A3	-	-	-	-	-	-	-	
Democratic Gvt & Will of People	A3.0	12III-B.1	Disting/Descr/Define	Inquiry Report	S	S	Comp	App	Comp
Voting Rts/Univ Suffrage/Minorit	A3.1	not clear	Define/Discuss	-	S	-	Comp	-	
Electoral process	A3.2	not clear	List/Discuss/Demonstr	-	S	-	Comp	-	
Charter of Rights & Freedoms	A3.3	-	Discuss/Identify	-	S	-	Comp	-	Know
Prssure Grps & othr Influ on Gvt	A3.4	12III-B.1	List/Discuss	Inquiry Report	S	S	Syn	App	
POLITICAL PARTIES									
Significance of Poltical Prties	A4.0	12III-B.1	Discuss	Inquiry Report	S	S	App	App	
Party Organization	A4.01	12III-B.1	Discuss/Investigate	Inquiry Report	S	S	App	App	
Rcle Political Parties in Govt	A4.1	12III-B.1	Discuss/Expl/Identify	Inquiry Report	S	S	App	App	
CANADIAN FEDERALISM									
Concept of Federalism	A5.0	12III-B.1	Define	Inquiry Report	S	S	Comp	Ana	Comp
Federal & Provincial Powers	A5.0.1	12III-B.1	Disting/Chart/Discuss	Inquiry Report	S	S	Comp	Ana	
Co-operative Federalism	A5.0.2	12III-B.1	Discuss	Inquiry Report	S	S	Ana	Ana	
Constitution Act (1982)	A5.1	-	Discuss/Define/Explain	-	S	-	Ana	-	
Opposition to 1982 Act	A5.2	-	Discuss	-	S	-	Ana	-	
PARLIAMENTARY SYSTEM IN CANADA									
Parliamentary System	A6.0	Partially	List/Discuss/Drw/Descr	Ana	S	S	Comp	Ana	App
Legislative Branch	A6.0.1	12III-B.1	Discuss/Relate	Ana	S	S	Comp	Ana	
Executive Branch	A6.0.2	12III-B.1	Describe	Ana	S	S	Comp	Ana	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Judicial Branch	A6.0.3	12III-B.1	Describe	Ana	S	S	Comp	Ana	
Criminal/Civil Law	A6.0.3.1	-	Define/Recog/Difference	-	S	-	Comp	-	
Role of Police	A6.0.4	-	Identify	-	C	-	Know	-	
How a Bill Becomes Law	A6.1	Implied	Outline	Trace	S	S	Comp	App	
PROVINCIAL GOVERNMENT									
Structure of Provincial Governm	A7.0	12III-B.1	Identify/Explain	Ana	S	S	Comp	App	
Parliament/Provincial	A7.1	Implied	Apply/Relate/Discuss	Ana	S	S	Ana	Ana	
Sask. Provincial Govt	A7.2	not clear	Discuss/Identify/Demons	-	S	-	Comp	-	
MUNICIPAL GOVERNMENT									
Structure Municipal Govt	A8.0	1963UIX:1	Identify/Describe	Examination	S	C	Comp	Know	
Functions Local Govt	A8.1	1963UIX:1	Define/Identify/Discuss	Examination	S	C	Comp	Know	
GOVERNMENT & THE PRESS (Optional)									
Parliament & Press	A9.0	12III-B.1	Explain/Demonstrate	Trace/Examine	S	S	App	App	
Significance Media	A9.1	12III-B.1	Define/Discuss	Trace/Examine	S	S	Comp	App	
Influence Media	A9.2	12III-B.1	Compare/Contrast/Demon	Trace/Examine	S	S	Ana	App	Comp
Advertising	A9.3	Implied	Discuss	Trace/Examine	S	S	Comp	App	
Civil Service	Adlt10A6	12III-B.1	Describe	Inquiry Report	S	S	App	App	
Political Spectrum	Adlt10A6	12III-B.1	Discuss	Trace/Examine	S	S	App	App	
TRACK B: Canadian Geography									
Introduction to Map Reading									
Types of Maps	B1.1.0	-	Name/Describe/Explain	-	S	-	Comp	-	
Five Parts of a Map	B1.2.0	-	List/Explain/Describe	-	S	-	Comp	-	
Gazeteer	B1.2.1	-	Locate/Identify	-	S	-	Comp	-	
Time Zones and Longitude	B1.2.2	-	Identify/Explain	-	S	-	Comp	-	
Latitude & Longitude	B1.2.3	-	Locate/Disting Between	-	S	-	App	-	Comp
Prime Meridian/Date Line	B1.2.3.1	-	Locate/Explain	-	S	-	Know	-	
Locate Geographic Points	B1.2.3.2	-	Locate	-	S	-	App	-	Know
Map Projections	B1.3.0	-	Explain/Describe	-	S	-	Comp	-	Comp
Graphs	B1.4.0	-	List/Identify/Describe	-	C	-	Know	-	
Interpret Graphs	B1.5.0	-	Interpret/Apply	-	S	-	App	-	
WORLD GEOGRAPHY									
Continents/Oceans	B2.0	-	Locate	-	C	-	Know	-	Comp
North/Central America	B2.1	-	Locate/Label	-	C	-	Know	-	
South America	B2.2	-	Locate/Label	-	C	-	Know	-	
Europe	B2.3	-	Locate/Label/Identify	-	C	-	Know	-	
Asia/Middle East/South Pacific	B2.4	-	Locate/Label/Identify	-	C	-	Know	-	Comp
Africa	B2.5	-	Locate/Label/Identify	-	C	-	Know	-	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
POLITICAL DIVISIONS/POP/SASK/CANADA									
Hemispherical Configurations	B3.0	-	Locate	-	C	-	Know	-	
Political Map Canada	B3.1	12II-A.1	Locate/Name/Identify	Place	C	C	Know	Know	
Political Map Saskatchewan	B3.2	12 II-A.1 (Implied)	Locate/Label/Identify	Place	C	C	Know	Know	
Population Dist Sask	B3.3	12II-A1	Graph	State	S	C	App	Know	
Population Dist Canada	B3.4	12II-A1	Graph/Compare/Contrast	State	S	C	Ana	Know	
TOPOGRAPHY CANADA									
Physical Regions	B4.0	12II-A1	Name/Locate	State/Describe	C	S	Know	App	
Landforms	B4.1	12II-A1	Identi/Name/Locate/Wrt	State/Describe	S	S	App	App	
Vegetation	B4.2	12II-A1	Identify/Name/Locate	Implied	C	S	Know	App	
CLIMATE									
Temperatures/Precipitation	B5.0	12II-A.3 (Implied)	Name/Locate/Describe	Inquiry Report	S	S	Comp	App	
Vegetation	B5.1	12II-A.3 (Implied)	Describe	Inquiry Report	S	S	Comp	App	
RESOURCES & INDUSTRIES									
Renewabl/Non-Renewable Resources	B6.0	12II-A.3 (Implied)	Define/Classify/Differ	-	S	-	Ana	-	
Renewble Non Ren Resorces/Indust	B6.1	12II-A.3 (Implied)	Identify/Name/Locate	-	C	-	Know	-	Comp
Renewable - Agriculture	B6.2	12II-A.3 (Implied)	Identify/Illust/Select	-	S	-	App	-	
Forestry/Lumber/Pulp & Paper	B6.2.2	12II-A.3 (Implied)	Identify/Descr/Illus	-	S	-	App	-	
Wildlife/Hunting/Trapping	B6.2.3	12II-A.3 (Implied)	Identify	-	S	-	App	-	
Fishing	B6.2.4	12II-A.3 (Implied)	Describe	-	S	-	App	-	
Water/Hydro Electric	B6.2.5	12II-A.3 (Implied)	Discuss/Essay	-	S	-	App	-	
Non-Renewable Resour/Industries	B6.3	-	-	-	S	-	Comp	-	
Minerals/Mining	B6.3.1	12II-A.3 (Implied)	Locate/Name/Discuss						
Petroleum	B6.3.2	12II-A.3 (Implied)	Locate/Name/Discuss	-	S	-	Comp	-	
CANADA'S SUPPORT INDUSTRIES									
Transportation Industry	B7.0	-	Identify/List	-	C	-	Know	-	
Communications Industry	B7.1	-	List/Research	-	S	-	App	-	
Physical Environment & Lifestyle	-	12II-A2	-	Critical Think	-	S	-	Comp	
People Changing Environment	-	12II-A2	-	Critical Think	-	S	-	Comp	
Regional Disparity	-	12II-A.3	-	Exam/Inquiry Report	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
Regional Economic Differences	-	12II-A.3	-	Exam/Inquiry Report	-	S	-	App	
Regional Political Differences	-	12II-A.3	-	Exam/Inquiry Report	-	S	-	App	
Regional Cultural Ddifferences	-	12II-A.3	-	Exam/Inquiry Report	-	S	-	Comp	
Effect of Geography on Canada	Track B	12II-A.3	Identify	Inquiry Report	C	S	Know	App	
TRACK C: Canadian History									
Canada's First Peoples									
Archaeology	C1.0	-	Describe/Define/Expl	-	S	-	App	-	
Historical Dating and Time Lines	C1.0.1	-	Define/Interpret/Dev	-	S	-	App	-	
Origin of North American Indians	C1.0.2	12(1963) Unit 1	Describe/Identify/Trace	Examination	C	C	Know	Know	
Old/New World Prehistory	C1.0.3	-	Define/Compare & Cntrst	-	S	-	Ana	-	
Native Culture/Language Groups	C1.1	12(1963) Unit 1	Define/Identify/Compare	Examination	S	C	Ana	Know	
Original Peoples of Canada	C1.2	12(1963)	Research, Presentation	Examination	S	C	App	Know	
THE COMING OF THE EUROPEANS									
Early European Exploration	C2.0	12(1963) Unit 1	Discuss/Trace	Examination	S	C	Comp	Know	
Early Settlers	C2.1	12(1963) Unit II	Discuss/Define/Describe	Examination	S	C	Comp	Know	
Early Colonies	C2.2	12(1963) Unit II	Define/Describe	Examination	S	C	Comp	Know	
New France	C2.2	12(1963) Unit II	Define/Describe	Examination	S	C	Comp	Know	
Acadians	C2.2	12(1963) Unit II	Define/Describe	Examination	S	C	Comp	Know	
Fur Trade	C2.2.1	12(1963) Unit II	Define/Discuss	Examination	S	C	Comp	Know	
French/British Conflict	C2.3	12(1963) Unit II	Discuss/Describe	Examination	S	C	Comp	Know	
PRE-CONFEDERATION									
Evolution Quebec Govt 1763-1791	C3.0	12(1963) Unit III	Explain/Describe	Examination	S	C	Comp	Know	
American Revolution 1776-1783	C3.0	12(1963) Unit III	Explain/Describe	Examination	S	C	Comp	Know	Comp
Evolution British N.A. 1763-1837	C3.1	12(1963) Unit III	Define/Describe	Examination	S	C	Comp	Know	
War of 1812	C3.1	12(1963) Unit III	Define/Describe	Examination	S	C	Comp	Know	Comp
1837 Rebellion	C3.2	12(1963) Unit III	List/Describe/Discuss	Examination	S	C	Comp	Know	
Evolution of Responsible Govt	C3.3	12(1963) Unit III	Discuss/Cmpare/Contrast	Examination	S	C	Anal	Know	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
ROAD TO CONFEDERATION									
Pre-Confederation Politl Deadlk	C4.0	12(1963) Unit IV	Discuss/List	Examination	S	C	Comp	Know	
Reasons for Confederation	C4.1	12(1963) Unit IV	Discuss	Examination	S	C	Comp	Know	
Confederation Conferences	C4.2	12(1963) Unit IV	Describe/Define/Discuss	Examination	S	C	Comp	Know	
Pre-Confederation Participants	C4.3	12(1963) Unit IV	Identify/Chart	Examination	S	C	App	Know	
Canadian Government Structure	C4.4	12(1963) Unit IV	Describe/Chart	Examination	S	C	App	Know	
POST-CONFEDERATION/EXPANSION WEST									
Eastern Canada 1867-1875	C5.0	12(63)V	Trace/Discuss	Examination	S	C	Comp	Know	
North-West Expansion	C5.0.1	12(63)V	Discuss	Examination	S	C	Comp	Know	
Western Unification with East	C5.0.2	12(63)V	Tell/Discuss/Locate	Examination	S	C	Comp	Know	
PEI and Confederation	C5.0.3	12(63)V	Describe/Discuss	Examination	S	C	Comp	Know	
Canadian Immigration West	C5.1	12(63)V	Discuss/Identify	Examination	S	C	Comp	Know	
National Policy/West Settlement	C5.1.1	12(63)V	Describe/Outlne/Discuss	Examination	S	C	Comp	Know	
Impact of Immigration/Metis	C5.1.2	12(63)V	Describe/Discuss	Examination	S	C	Comp	Know	
Government Treaty with Indians	C5.2	12(63)V	Define/Discuss	Examination	S	C	Comp	Know	
Government/Metis 1885	C5.3	12(63)V	Trace/Discuss	Examination	S	C	Comp	Know	
North West Joins Confederation	C5.4	12(63)VI	Describe/Discuss	Examination	S	C	Comp	Know	
INTO THE TWENTIETH CENTURY									
Industrial Expansion	C6.0	12(63)VI	Discuss	Examination	S	C	Comp	Know	
Trade Union Movement	C6.0.1	12(63)VI	Discuss/Define/Describe	Examination	S	C	Comp	Know	
Women's Suffrage	C6.0.2	12(63)VI	Defne/Discss/Lst/Otline	Examination	S	C	Comp	Know	
Can. Intrntionl Role Erly 20th C	C6.1	12(63)VI	Discuss	Examination	S	C	Comp	Know	
Canada Between the Wars	C6.2	12(63)VII	Define/Explain/Discuss	Examination	S	C	Comp	Know	Comp
Post World War II Canada	C6.3	12(63) Unit VIII	Discuss	Examination	S	C	Comp	Know	
Can Poltcal Independence 1965-82	C6.4	12(63) Unit VIII	Discuss/State/Identify	Examination	S	C	Comp	Know	
Canada in NATO/UN	-	12(63) Unit VIII	-	Examination	-	C	-	Know	
Defence Arrangements USA	-	12(63) Unit VIII	-	Examination	-	C	-	Know	
Commonwealth Relations	-	12(63) Unit VIII	-	Examination	-	C	-	Know	
Immigration Policies	-	12III-A 1963 IX	-	Examination	-	C	-	Know	
Canadian Transportation Problems	-	12(63) IX	-	Examination	-	C	-	Know	
Canadian Labour Relations	-	12(63) IX	-	Examination	-	C	-	Know	
Canadian Agricultural Problems	-	12(63) IX	-	Examination	-	C	-	Know	
Canadian Education Problems	-	12(63) IX	-	Examination	-	C	-	Know	

178

178-A

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
THE CANADIAN ECONOMY									
Nature of a Mixed Economy	-	12 III-A	-	Exam/Inquiry Rprt	-	S	-	App	
Private Ownership	-	12III-A (63) IX	-	Exam/Inquiry Rprt	-	S	-	App	
Corporations	-	12 III-A (63) IX	-	Exam/Inquiry Rprt	-	S	-	App	
Co-operatives	-	12 III-A (63) IX	-	Exam/Inquiry Rprt	-	S	-	App	
Public Ownership	-	12 III-A (63) IX	-	Exam/Inquiry Rprt	-	S	-	App	
Characteristics of Can Economy	-	12 III-A	-	Exam/Inquiry Rprt	-	S	-	App	
Characteristcs of Busness Organ	-	12 III-A	-	Exam/Inquiry Rprt	-	S	-	App	
Current Economic Issues	-	12 III-A	-	Exam/Inquiry Rprt	-	S	-	App	
Government Welfare Measures	-	12 III-A (63) IX		Examination	-	C	-	Know	
CULTURAL DIVERSITY									
Majority-Minority Groups	-	12 III-C	-	Hypothesis/Inq Rprt	-	S	-	App	
Concepts of Acceptance/Rejection	-	12 III-C	-	Analyze/Inq Rprt	-	S	-	Ana	
Majority-Minority Conflicts	-	12 III-C	-	Inquiry Report	-	S	-	App	
FOREIGN POLICY									
Trade Policies GATT etc.	-	12 III-D	-	Investigation	-	S	-	App	
Foreign Aid	-	12 III-D	-	Investigation	-	S	-	App	
Miltary Alliancs/NATO, NORAD,UN	-	12 III-D	-	Investigation	-	S	-	App	
Cultural Exchange	-	12 III-D	-	Investigation	-	S	-	App	
Foreign Policy Goals Since 1945	-	12 III-D	-	Investigation	-	S	-	App	
Foreign Policy Goals Since 1970	-	12 III-D	-	Investigation	-	S	-	App	
CANADIAN IDENTITY									
Canadian Identity: Factors	-	12 IV-A	-	Examine/Questions	-	S	-	App	
Geog/Regionalism/America	-	12 IV-A	-	Examine/Questions	-	S	-	App	
Econmc/Political/Religious Inst	-	12 IV-A	-	Examine/Questions	-	S	-	App	
Cultural Diversity	-	12 IV-A	-	Examine/Questions	-	S	-	App	
Immigration Policy	-	12 IV-A	-	Examine/Questions	-	S	-	App	
Canadian Identity:Manifestations	-	12 IV-A	-	Examine/Questions	-	S	-	App	
Art/Music/Lit/Recreation	-	12 IV-A	-	Examine/Questions	-	S	-	App	
Canadian Identity:Implementation	-	12 IV-A	-	Examine/Questions	-	S	-	App	
Government Agencies	-	12 IV-A	-	Examine/Questions	-	S	-	App	
CRTC, CBC, etc.	-	12 IV-A	-	Examine/Questions	-	S	-	App	
Government Organizations	-	12 IV-A	-	Examine/Questions	-	S	-	App	
Committee for Ind. Can/Media etc	-	12 IV-A	-	Examine/Questions	-	S	-	App	

OBJECTIVE	ABE	IV	EVAL CRITER ABE	EVAL CRITERION IV	CONT/SKILL ABE	CONT/SKILL IV	CATEGORY ABE	CATEGORY IV	GED
TRACK D: Native Studies									
Canada's First Peoples									
D1.0-D1.2 same as C1.0-C1.2									
Initial Contact With Europeans	D1.3	12(63) I	Chart/Compare/Contrast	Examination	S	C	Ana	Know	
Affect of Fur Trade	D1.4	12(63) I	Compare/List/Essay	Examination	S	C	App	Know	
Origins of Native Peoples/Metis	D1.5	12(63) Unt I/III	Define/Describe	Examination	S	C	Comp	Know	
Stats Indian/Reg Indian/Treaties	D1.5	-	Define/Describe	-	S	-	Comp	-	
Status Indians	D1.6	-	Define/Describe	-	S	-	Comp	-	
Native People in Sask Today	D1.7	-	Describe/State/Essay	-	S	-	App	-	
STATUS INDIANS (Optional)									
Prairie Tribes/Fur Trade	D2.0	-	Trace/Compare/List	-	S	-	Ana	-	
Non-Changing Cultural Patterns	D2.1	-	Identify/List	-	C	-	Know	-	
Changes in Indian Life by 1900	D2.2	-	List/Describe/Discuss	-	S	-	Comp	-	
(Cont) Riel Rebellion	D2.2	12(63) V	Outline/Describe	Examination	S	C	Comp	Know	
Status Indians 20th C Events	D2.3	-	Describe/Outline/Trace	-	S	C	Comp	Know	
Current Indn Concerns/Constitutn	D2.4	-	Discuss/Relate	-	S	-	Comp	Know	Comp
NON-STATUS AND METIS									
The Fur trade and Metis	D3.0	12(63) V	Develop/Discuss	Examination	S	C	Comp	Know	
Metis Culture	D3.1	-	Identify/Discuss	-	S	-	Comp	-	
Key Metis/Europ Historical Evnts	D3.2	12(63) V	Explain/Chart	Examination	S	C	App	Know	
1885 Metis Uprising	D3.3	12(63) V	Discuss/Map/Explain	Examination	S	C	App	Know	
Main Groups/Individuals in 1885	D3.4	12(63) V	Demonstrate/Explain	Examination	S	C	Comp	Know	
Vewpoints of the Particpnts 1885	D3.5	12(63) V	Slct/Map/Take position	Examination	S	C	App	Know	
Impact of 1885 on Metis	D3.6	-	Describe/Map	-	S	-	App	-	
Metis in 20th Century	D3.7	-	Describe/Define	-	S	-	App	-	
Metis Concerns/Political Strctre	D3.8	-	Relate/Discuss	-	S	-	Comp	-	
Land Claims/AMNSIS/Constitution	D3.8	-	Discuss/List	-	S	-	Comp	-	

APPENDIX 2

BEHAVIOURAL TERMS USED TO CLASSIFY OBJECTIVES, EVALUATION CRITERIA AND GED TEST ITEMS

COGNITIVE DOMAIN
EXAMPLES OF GENERAL INSTRUCTIONAL OBJECTIVES
AND BEHAVIOURAL TERMS

Illustrative General Instructional Objectives	Illustrative Behavioural Terms for Stating Specific Learning Outcomes
KNOWLEDGE	
Knows common terms Knows specific facts Knows methods and procedures Knows basic principles Knows principles	Defines, describes, identifies, labels, lists, matches, names, outlines, reproduces, selects, states
COMPREHENSION	
Understands facts and principles Interprets verbal materials Interprets charts and graphs Translates verbal material to mathematical formulas Estimates future consequences implied in the data Justifies methods and procedures	Converts, defends, distinguishes, estimates, explains, extends, generalizes, gives examples, infers, paraphrases, rewrites, summarizes
APPLICATION	
Applies concepts and principles to situations Applies laws/theories to practical situations Solves mathematical problems Constructs charts and graphs Demonstrates correct usage of a method	Changes, computes, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses
ANALYSIS	
Recognizes unstated assumptions Recognizes logical fallacies in reasoning Distinguishes between facts and inferences Analyzes the organizational structure	Breaks down, diagrams, differentiates, discriminates, distinguishes, identifies, illustrates, infers, outlines, points out, relates, selects, separates, subdivides

SYNTHESIS	
Writes a well organized theme Gives a well organized speech Writes a creative short story poem, etc. Proposes a plan for an experiment Integrates learning from different areas into a plan for solving a problem Formulates a new scheme for classifying objects (or events, or ideas)	Categorizes, combines, compiles, composes, creates, devises, designs, explains, generates, modifies, organizes, plans, rearranges, reconstructs, relates, reorganizes, revises, rewrites, summarizes, tells, writes
EVALUATION	
Judges the logical consistency of information Judges the adequacy with which conclusions are supported by data Judges the value of a work (art, music, writing) by use of internal criteria Judges the value of a work (art, music, writing) by use of external standards of excellence.	Appraises, compares, concludes, contrasts, criticizes, describes, discriminates, explains, justifies, interprets, relates, summarizes, supports

APPENDIX 3

GENERAL EDUCATIONAL DEVELOPMENT TEST SUBJECT AREA CONTENT DOMAINS

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WRITING SKILLS APPENDIX I

Content Outline: Test One: Writing Skills

The specific categories of skills within these content areas are as follows. An example of each type of error appears within the parentheses that follow.

Content Areas

I. Sentence Structure: Sentence structure items are drawn from the following categories.
   A. Sentence fragment (example: Charles bringing his records to the party.)
   B. Run-on sentence (example: Michael forgot his wallet he ran back home to get it.)
   C. Comma splice (example: Norma plays tennis well, she has won several tournaments.)
   D. Improper coordination (example: The forecast called for rain, and the sun shone brightly all day long.)
   E. Improper subordination (example: We will continue to depend on oil even whenever solar energy is developed.)
   F. Clarity, modification, parallelism (examples: Walking down the street, the clock struck twelve. She likes reading and to travel.)

II. Usage: The usage items are drawn from the following categories.
   A. Subject-verb agreement:

1. Noun-verb pairs (examples: Kim and Becky is here. Kathy do what she can to help.)
2. Interrupting phrase (example: The teacher of composition, spelling, and reading are in need of more textbooks.)
3. Inverted structure (example: Above the door is two nails.)
4. Expletive (example: There remains many reasons for Nanette's unhappiness.)
5. Connectives other than and (example: Elaine, like her two sisters, are tall and thin.)
6. Neither-nor/either-or (example: Neither Robert nor Susan know the answer.)

B. Verb tense errors:
1. Sequence of tenses (example: When Milton talks, I listened.)
2. Word clue to tense in sentence (example: Yesterday Tom will go to school.)
3. Word clues to tense in paragraph (example: "I couldn't get the loan," though grammatically correct, is not appropriate when the paragraph is referring to a future transaction.) **At least one item of this nature, but no more than two, will be included with each selection.**
4. Verb form (example: Walter seen the accident.)

C. Pronoun Reference:
1. Wrong relative pronoun (example: Leroy is a man which I admire.)
2. Pronoun shift (example: If one wants something, you must work to get it.) Note: Pronoun shifts within both a single sentence and an entire paragraph will be tested.
3. Vague reference (example: He tried to explain the problem to his parents and his friends, but they wouldn't listen.)
4. Ambiguous reference (example: The attorney followed the executive into his office.)
5. Agreement with antecedent (example: Germany was offered help, and they gratefully accepted the offer.)

III. Mechanics: Mechanics items are drawn from the following categories.

A. Capitalization:
1. Proper nouns and adjectives (example: He learned the russian dance.)
2. Titles of people (example: George is married to senator Carlsen.)
3. Dates (example: Her birthday falls on christmas day.)
4. Places/addresses (example: She lives at 139 Tulane road.)
5. Season/time (example: She bought a house last Fall.)

B. Punctuation:
1. Comma between items in series (example: We need eggs bread, and milk from the store.) Note: The use of the serial comma (i.e., the comma before the final item in the series) will not be tested.
2. Comma between independent clauses (example: Claude wanted to rest for a while but Celia wanted to continue walking.)
3. Comma after introductory elements (example: After bringing in the fresh milk the farmer prepared to feed the hogs.)
4. Comma after introductory dependent clauses (example: When Linda walked into the room she was completely unprepared for what awaited her.)
5. Overuse of commas (example: She came to the party, and decided to stay.)
6. Appositives and parenthetical elements (examples: Appositive: The chairperson Shirley Johnson called the meeting to order. Parenthetical element: He dislikes sweets for example and never eats desserts.)

C. Spelling/Possessives/Contractions:
   1. Commonly misspelled words. Items for this category consist of *frequently misspelled* words that are common to the vocabulary of examinees. All spelling words are drawn from the GED Tests Master List of Frequently Misspelled Words, the current edition of which is included below.
   2. Troublesome possessives, contractions, and homonyms (examples: We want to go their in the car. Your the best player on the team.)

WRITING SKILLS APPENDIX II

Master List of Frequently Misspelled Words

The following is a compilation from numerous published lists of frequently misspelled words. Words outside the vocabulary of many GED examinees have been eliminated (e.g., *omniscient, connoiseur,* etc.). **Plurals, comparative, superlative, and adverbial forms of most words listed here may also be tested.**

a lot
ability
absence
absent
abundance
accept
acceptable
accident
accommodate
accompanied
accomplish
accumulation
accuse
accustomed
ache
achieve
achievement
acknowledge
acquaintance
acquainted
acquire
across
address
addressed
adequate
advantageous
advantage
advertise
advertisement
advice
advisable
advise
advisor
aerial
affect
affectionate
again
against
aggravate
aggressive
agree
aisle
all right
almost
already
although
altogether
always
amateur
American
among
amount
analysis
analyze
angel
angle
annual
another
answer
antiseptic
anxious
apologize
apparatus
apparent
appear
appearance
appetite
application
apply
appreciate
appreciation
approach
appropriate
approval
approve
approximate
argue
arguing
argument
arouse
arrange
arrangement
article
artificial
ascend
assistance
assistant
associate
association
attempt
attendance
attention
audience
August
author
automobile
autumn
auxiliary
available
avenue
awful
awkward
bachelor
balance
balloon
bargain
basic
beautiful
because
become
before
beginning
being
believe
benefit
benefited
between
bicycle
board
bored
borrow
bottle
bottom
boundary
brake
breadth
breath
breathe
brilliant
building
bulletin
bureau

Test Descriptions

burial
buried
bury
bushes
business
cafeteria
calculator
calendar
campaign
capital
capitol
captain
career
careful
careless
carriage
carrying
category
ceiling
cemetery
cereal
certain
changeable
characteristic
charity
chief
choose
chose
cigarette
circumstance
congratulate
citizen
clothes
clothing
coarse
coffee
collect
college
column
comedy
comfortable
commitment
committed
committee
communicate
company
comparative
compel
competent
competition
compliment
conceal
conceit
conceivable
conceive
concentration
conception
condition
conference
confident
conquer
conscience
conscientious
conscious
consequence
consequently
considerable
consistency
consistent
continual
continuous
controlled
controversy
convenience
convenient
conversation
corporal
corroborate
council
counsel
counselor
courage
courageous
course
courteous
courtesy
criticism
criticize
crystal
curiosity
cylinder
daily
daughter
daybreak
death
deceive
December
deception
decide
decision
decisive
deed
definite
delicious
dependent
deposit
derelict
descend
descent
describe
description
desert
desirable
despair
desperate
dessert
destruction
determine
develop
development
device
dictator
died
difference
different
dilemma
dinner
direction
disappear
disappoint
disappointment
disapproval
disapprove
disastrous
discipline
discover
discriminate
disease
dissatisfied
dissection
dissipate
distance
distinction
division
doctor
dollar
doubt
dozen
earnest
easy
ecstasy
ecstatic
education
effect
efficiency
efficient
eight
either
eligibility
eligible
eliminate
embarrass
embarrassment
emergency
emphasis
emphasize
enclosure
encouraging
endeavor
engineer
English
enormous
enough
entrance
envelope
environment
equipment
equipped
especially
essential
evening
evident
exaggerate
exaggeration
examine
exceed
excellent
except
exceptional
exercise
exhausted
exhaustion
exhilaration
existence
exorbitant
expense
experience
experiment
explanation
exercise

facility
factory
familiar
fascinate
fascinating
fatigue
February
financial
financier
flourish
forcibly
forehead
foreign
formal
former
fortunate
fourteen
fourth
frequent
friend
frightening
fundamental
further
gallon
garden
gardener
general
genius
government
governor
grammar
grateful
great
grievance
grievous
grocery
guarantee
guess
guidance
half
hammer
handkerchief
happiness
healthy
heard
heavy
height
heroes
heroine
hideous
himself
hoarse
holiday
hopeless
hospital
humorous
hurried
hurrying
ignorance
imaginary
imbecile
imitation
immediately
immigrant
incidental
increase
independence
independent
indispensable
inevitable
influence
influential
initiate
innocence
inoculate
inquiry
insistent
instead
instinct
integrity
intellectual
intelligence
intercede
interest
interfere
interference
interpreted
interrupt
invitation
irrelevant
irresistible
irritable
island
its
it's
itself
January
jealous
judgment
journal
kindergarten
kitchen
knew
knock
know
knowledge
labor
laboratory
laid
language
later
latter
laugh
leisure
length
lesson
library
license
light
lightning
likelihood
likely
literal
literature
livelihood
loaf
loneliness
loose
lose
losing
loyal
loyalty
magazine
maintenance
maneuver
marriage
married
marry
match
material
mathematics
measure
medicine
million
miniature
minimum
miracle
miscellaneous
mischief
mischievous
misspelled
mistake
momentous
monkey
monotonous
moral
morale
mortgage
mountain
mournful
muscle
mysterious
mystery
narrative
natural
necessary
needle
negligence
neighbor
neither
newspaper
newsstand
niece
noticeable
o'clock
obedient
obstacle
occasion
occasional
occur
occurred
occurrence
ocean
offer
often
omission
omit
once
operate
opinion
opportune
opportunity
optimist
optimistic
origin
original
oscillate
ought
ounce
overcoat

paid
pamphlet
panicky
parallel
parallelism
particular
partner
pastime
patience
peace
peaceable
pear
peculiar
pencil
people
perceive
perception
perfect
perform
performance
perhaps
period
permanence
permanent
perpendicular
perseverance
persevere
persistent
persuade
personality
personal
personnel
persuade
persuasion
pertain
picture
piece
plain
playwright
pleasant
please
pleasure
pocket
poison
policeman
political
population
portrayal
positive
possess
possession
possessive
possible
post office
potatoes
practical
prairie
precede
preceding
precise
predictable
prefer
preference
preferential
preferred
prejudice
preparation
prepare
prescription
presence
president
prevalent
primitive
principal
principle
privilege
probably
procedure
proceed
produce
professional
professor
profitable
prominent
promise
pronounce
pronunciation
propeller
prophet
prospect
psychology
pursue
pursuit
quality
quantity
quarreling
quart
quarter
quiet
quite
raise
realistic
realize
reason
rebellion
recede
receipt
receive
recipe
recognize
recommend
recuperate
referred
rehearsal
reign
relevant
relieve
remedy
renovate
repeat
repetition
representative
requirements
resemblance
resistance
resource
respectability
responsibility
restaurant
rhythm
rhythmical
ridiculous
right
role
roll
roommate
sandwich
Saturday
scarcely
scene
schedule
science
scientific
scissors
season
secretary
seize
seminar
sense
separate
service
several
severely
shepherd
sheriff
shining
shoulder
shriek
siege
sight
signal
significance
significant
similar
similarity
sincerely
site
soldier
solemn
sophomore
soul
source
souvenir
special
specified
specimen
speech
stationary
stationery
statue
stockings
stomach
straight
strength
strenuous
stretch
striking
studying
substantial
succeed
successful
sudden
superintendent
suppress
surely
surprise
suspense
sweat
sweet
syllable

symmetrical
sympathy
synonym
technical
telegram
telephone
temperament
temperature
tenant
tendency
tenement
therefore
thorough
through
title
together
tomorrow
tongue
toward
tragedy
transferred
treasury
tremendous
tries
truly
twelfth
twelve
tyranny
undoubtedly
United States
university
unnecessary
unusual
vacuum
useful
usual
valley
valuable
variety
vegetable
vein
vengeance
versatile
vicinity
vicious
view
village
villain
visitor
voice
volume
waist
weak
wear
weather
Wednesday
week
weigh
weird
whether
which
while
whole
wholly
whose
wretched

TEST FOUR
INTERPRETING LITERATURE AND THE ARTS

Content Area Description

The content of the Interpreting Literature and the Arts Test consists of materials drawn from three content areas: Popular Literature, Classical Literature, and Commentary. While most literature selections are by American authors, English and Canadian authors are also represented, as are definitive translations of some excerpts from world literature. Materials in the commentary section include prose excerpts *about* literature and the arts. Appropriate subject matter for excerpts in the commentary section includes published comments, reviews, and criticism of the fine arts, television, film, dance, and literature.

Items in the Interpreting Literature and the Arts Test measure examinees' ability to comprehend, apply, and analyze literary selections, though no items assume a knowledge of the language of literary criticism.

The following table presents the number of items by content area in the Interpreting Literature and the Arts Test.

Content Ar	Percentage of Test
Popular L ure	50%
Classical ature	25%
Commen about Literature and the Arts	25%

The following descriptions of content areas are provided to suggest the range of topics from which items may be drawn for Interpreting Literature and the Arts.

Popular literature ranges from contemporary literary works to the popular press. The definitive characteristic of popular literature on the GED Tests is that it is of *acknowledged* quality, i.e., a model of good writing or thought that is likely to endure. The genres addressed by both the popular literature selections and the classical literature sections include fiction, prose nonfiction, poetry, and drama.

Fiction selections are generally excerpts from novels or short stories found in popular books and magazines. Prose nonfiction includes excerpts from journals, travelogues, essays, criticism, biography, and major newspapers. Other sources for prose nonfiction include columns that serve as social commentary, well-written biographies of women and men in the twentieth century, articles from news periodicals, essays from journals, and essays and excerpts that have already been anthologized.

Poetry selections for the popular literature section consist of short contemporary poems or excerpts from longer poems. Drama selections are chosen from plays by playwrights not deemed "classical" by the definition in the following section. However, the excerpts that are selected are well written and at an appropriate level of difficulty.

Good writers considered "popular" by the definitions here would include Joyce Carol Oates, Toni Morrison, Maya Angelou, Robert Stone, John Le Carré, John Irving, Ken Kesey, Mary Gordon, Betty Friedan, James Baldwin, Gail Godwin, Mary McCarthy, Ralph Ellison, William Golding, and Studs Terkel, to name just a few.

Classical literature, like popular literature, includes fiction, prose, nonfiction, poetry, and drama. Because the line between popular and classical literature is fuzzy at best, the following definition is used to clarify the distinction: Classical literature is "a piece of literature which by common consent has achieved a recognized position in literary history for its superior qualities; also an author of similar standing " (Holman, 1972). Materials for

this section of the test may be drawn from nineteenth- and twentieth-century works of recognized literary merit. Examples of "classical" writers include Twain, Hemingway, Fitzgerald, Faulkner, Emerson, Thoreau, Steinbeck, Thomas Wolfe, Eugene O'Neill, Tennessee Williams, Robert Frost, Carl Sandburg, Katherine Ann Porter, Edith Wharton, Stephen Crane, G. K. Chesterton, and D. H. Lawrence, again, to name just a few.

Commentary selections consist of writings *about* literature and the arts, and these may be in the form of comments, criticism, or reviews of television, film, literature, dance, art, music, sculpture, and theater. Popular magazines and newspapers are the likeliest sources for materials appropriate for the **commentary** section of the test. Because reviews and criticism tend to use a unique style and vocabulary, particular care is taken to select materials at an appropriate level of difficulty and interest for the examinee population. With this point in mind, commentary materials are at least partly informational or descriptive in nature. For example, a review of an art exhibit is considered acceptable as a stimulus only if it describes the artworks or provides background information about them. Commentary selections in the test do not focus on an analysis of the artist's technique or assume prior knowledge of an artwork or the artist.

MATHEMATICS: APPENDIX

Test Five: Mathematics

I. Arithmetic
   A. Measurement
      1. Solving problems involving length, height, perimeter, area, and volume that do not require algebraic manipulations or geometric insights. (These items use both metric and imperial systems. Conversions from one system to the other are not included, but conversions within systems, as well as units of area, are included.)
      2. Solving rate problems (distance/time, cost/unit, simple percent applications) directly without using algebraic properties
      3. Reading and interpreting scales and meters
   B. Number relationships
      1. Solving problems involving order of operations
      2. Sequencing decimals, fractions, and percents
      3. Comparing and ordering a collection of data
      4. Analyzing and using exponents and scientific notation
      5. Rounding numbers to approximate value
   C. Data analysis
      1. Solving problems involving central tendency (mean and median)
      2. Interpreting and constructing graphs (bar, line, circular) and tables
      3. Recognizing the misuse or misinterpretation of statistical information
      4. Solving problems using simple probability in realistic settings

II. Algebra
- A. Solving problems using algebraic language and symbolism (variables, exponents, =, +, $\leq$, $\geq$, etc.)
- B. Translating context into symbolic language
- C. Identifying, setting up, and solving equations and formulas (primarily with one unknown)
- D. Solving and evaluating various types of equations and relations (linear and quadratic)
- E. Applying common axioms and properties (associative, commutative, distributive laws) governing the solution of equations and formulas
- F. Understanding and using inequalities
- G. Factoring
- H. Solving problems involving algebraic fractions, including proportions and complex percent applications (percentage of increase/decrease)

III. Geometry
- A. Solving problems involving geometric concepts such as perpendicular and parallel lines
- B. Solving problems involving triangle theory (congruent, similar, isosceles, and right triangles)
- C. Recognizing names of plane and solid figures and their component parts (e.g., diagonal, vertex, radius, diameter)
- D. Identifying rectangular coordinates (points on a graph) and points of intersection
- E. Finding the distance between points in a plane
- F. Calculating the slope of lines
- G. Indirectly measuring angles and line segments using geometric properties (such as similar figures and the Pythagorean Theorem)

Note: Canadian versions of the GED Mathematics Test are based upon the same content as that listed above but adhere to the *Metric Style Guide* used throughout Canada in the public schools.

SOCIAL STUDIES & SCIENCE: APPENDIX II

Test Two: Social Studies, Canadian Edition

I. Canadian History
   A. Canada's native peoples
   B. European exploration and colonization in the 16th century
      1. French in New France: Acadia, St. Lawrence River Valley
      2. British in New England: Atlantic Seaboard
      3. French empire vs. British empire
   C. Growth and change
      1. British imperial policy
      2. Proclamation of 1763
      3. Constitutional Act (1774); Quebec Act (1791)
      4. American Revolution: effect on British North America
      5. War of 1812; British North America
   D. Growing frontier community
      1. Western trade and settlement
      2. Canals, railways, migrations
   E. Political reform and confederation
      1. Development of responsible government
      2. Durham's Report
      3. Confederation of 1867: British North America Act
   F. The age of Macdonald (1867-1891)
      1. National policy
      2. Political parties
      3. Canadian Pacific Railway

4. Riel Rebellions
5. Macdonald-Cartier alliance

G. Canada in the twentieth century
1. Prime ministries of Laurier and Borden
2. French-English conflict: Manitoba schools question; conscription
3. World War I
4. The Depression
5. World War II: economic and political impact
6. Trade unionism
7. Independence within the commonwealth
8. NATO and NORAD

H. Facing the challenges of the modern world
1. National transportation and communication policy
2. Ottawa and the provinces
3. Quebec separatism
4. Canadian-United States relations
5. Power and responsibility in a nuclear age
6. Working for peace
7. Global interdependence

II. Geography

A. Basic principles, concepts, and tools of geography
1. Location: maps, globes, latitude and longitude
2. Physical environment: geology, topography, climate, soils, natural vegetation, water (resources)
3. The Earth and its people: population distribution, migration
4. Geographic regions: based on climates, linguistics, agricultural types
5. Themes: agriculture, mining, forestry, fishing, transportation, energy
6. Worldwide limitations of nonrenewable resources

B. Canadian regions
1. Atlantic
2. Lowlands-industrial heartland
3. Prairies
4. Mountains and coast
5. The North: the near north (Boreal Forest), the far north (Arctic)

C. Canadian themes and issues
1. Regional differences: population, income, resources
2. Foreign investment in Canada
3. Multicultural groups
4. Urbanization; rural lifestyles
5. Pollution and waste: acid precipitation, Great Lakes water, soil degradation
6. Native land claims

D. Major cultural regions: Canada and the United States; Latin America; Northwestern Europe; Mediterranean countries; the Middle East; the USSR and Eastern Europe; the Far East; Africa south of the Sahara; the Pacific; Southeast Asia
1. Physical environment
2. Economic development
3. Cultural aspects

E. Using the world's resources: toward a better world
1. Resources and development

2. Urban and rural life
3. Preserving the world's environments
4. International trade

III. Economics
- A. The theme of scarcity
- B. Comparison of modern (mixed) economic systems: capitalism, communism, socialism (free market vs. command)
- C. Businesses in a free enterprise system
  1. How business is organized
  2. Economic markets
  3. Supply and demand
  4. How prices are determined
  5. Competition and monopoly
- D. Production
  1. Role of production
  2. Deciding what and how to produce and distribute
  3. Production of goods and services; mass production, craftsmanship
- E. Consumers
  1. Role of the consumer in the economy
  2. Money management: investment, insurance, savings
  3. Advertising
  4. Consumer budgeting: credit and contracts
- F. Financial institutions
  1. Money and monetary policy
  2. Banking and interest
  3. Financial institutions other than banks
- G. Government's role in the economy (federal, provincial)
  1. Taxes and other sources of revenue
  2. Government expenditures, services; national debt, balancing the budget, transfer payments, full employment, price stability
  3. Consumer protection and education
  4. Business regulation; antimonopoly legislation
- H. Selected economic themes
  1. Measuring the economy; GNP, Consumer Price Index, wages
  2. How the economy changes: industrialization, development, expanding markets
  3. Inflation and deflation, recession
- I. Labor and the economy
  1. Labor market: union and nonunion labor
  2. Distribution of income: profit and wages, economic classes
  3. Collective bargaining, strikes, and picketing
  4. Productivity
  5. Unemployment: causes, how to reduce it
- J. Foreign trade
  1. Imports and exports
  2. Balance of trade
  3. Multinational corporations
  4. Foreign competition
  5. National and global interests

IV. Political Science

A. Nature of political systems
   1. Government and society: sovereignty and the basic roles of government
   2. Types of modern governments: federal and unitary states
   3. Meaning of democracy

B. The Canadian political system: British North America Act; Constitution Act, 1982
   1. Canadian political process
      a) Political party system
      b) Right to vote and voter behavior
      c) Nominations and elections
      d) Public opinion and pressure groups
      e) Active citizenship
   2. National executive branch
      a) Monarchy
      b) Office and power of governor-general
      c) Office and powers of cabinet government
      d) Public service; bureaucratic process and policy formation
   3. National legislative branch
      a) Legislative powers and processes
      b) Senate
      c) House of Commons
   4. National judicial branch
      a) Canadian system of justice: importance of law and the legal system
      b) Federal courts
      c) Role and reform of the Supreme Court
      d) Charter of Rights and Freedoms
   5. Provincial governments
      a) Nature of provincial governments
      b) Federal-provincial relations
      c) Regionalism
   6. Municipal governments
      a) Functions
      b) Financing municipal government
      c) Special services: road system, transit, development, sanitation, water supply, annexation,

C. Government and general welfare
   1. Federal revenues and expenditures
   2. Money and banking policies
   3. Government and business: capitalism/socialism, Crown Corp., DRIE
   4. Labor and welfare
   5. Federal agencies: Wheat Board, Environment Canada, Transport Canada, CRTC

D. Canada in today's world
   1. Canadian foreign policy
   2. Canada and international organizations: CIDA, NATO, Commonwealth, UN
   3. Meeting social responsibilities: health, education, welfare, crime, population change, technological change

V. Behavioral Sciences

A. People as individuals: influences on human behavior
   1. Primary needs for survival and well-being

SOCIAL STUDIES & SCIENCE: APPENDIX III

Test Three: Science

I. Biology
- A. Biology of cells
  1. Chemical basis of life
  2. Energy and the living cell
  3. Photosynthesis and respiration
  4. Cellular organization and processes
- B. Diversity of Life
  1. Genetics and inheritance
  2. Variety and classification of organisms
  3. Natural selection and evolution
  4. Plant and animal growth and development
  5. Characteristics and systems of organisms
- C. Population biology
  1. Behavioral complexity, learning, and communication
  2. Ecosystems and communities
  3. Energy and the human race

II. Earth Science
- A. Our universe
  1. The solar system
  2. Stars, galaxies, and quasars
- B. The earth
  1. Structure, magnetism, and gravity
  2. Minerals, rocks, and ores
  3. Fossils and the eras of geologic time
- C. The changing earth
  1. The shape of the land, weathering, and erosion
  2. The drifting continents, earthquakes, and volcanoes
  3. The oceans
  4. Mapping and landforms
- D. Air and water

1. The atmosphere and solar energy
2. Humidity, air pressure, winds, weather, and climate

E. Energy and the environment
1. Geothermal, solar, and nuclear energy
2. Wind and water power
3. People and the environment

III. Physics

A. Mechanics and thermodynamics
1. Nature of motion
2. Resolution and composition of forces
3. Power and simple machines
4. Heat and work

B. Nature of waves
1. Energy transfer
2. Properties of waves, sound waves, wave nature of light
3. Reflection, refraction, diffraction, and polarization

C. Electricity and magnetism
1. Electric currents and circuits
2. Generating and transmitting electricity
3. Magnetic behavior

D. Nuclear physics
1. Rays and radiation
2. Fission and fusion reactions
3. Particles and accelerators

IV. Chemistry

A. Structure of matter
1. Atomic theory, electrons and clouds
2. Compounds and equations
3. Energy changes

B. Periodicity of elements
1. Periodic law
2. Bonding
3. Kinetic theory

C. Behavior of matter
1. Energy and disorder
2. Solutions
3. Reaction rate and chemical equilibrium
4. Acids, bases, and salts
5. Oxidation reduction
6. Electrochemistry

D. Nuclear and organic chemistry
1. Radioactivity and half-life
2. Hydrocarbons
3. Polymers and oxygen compounds